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Announcement

ROBERT W. PHILIP has been appointed Editor of COTTON, succeeding the late Louis L. Arnold, who occupied this position for seventeen years. Mr. Philip has been associate editor with Mr. Arnold for the past nine years, and is therefore thoroughly qualified to carry out fully the policies of the magazine as they have prevailed in the past. Under his direction, these policies will be continued.

W. R. C. Smith, President,
T. W. McAllister, Editorial Director,
W. R. C. SMITH PUBLISHING COMPANY.

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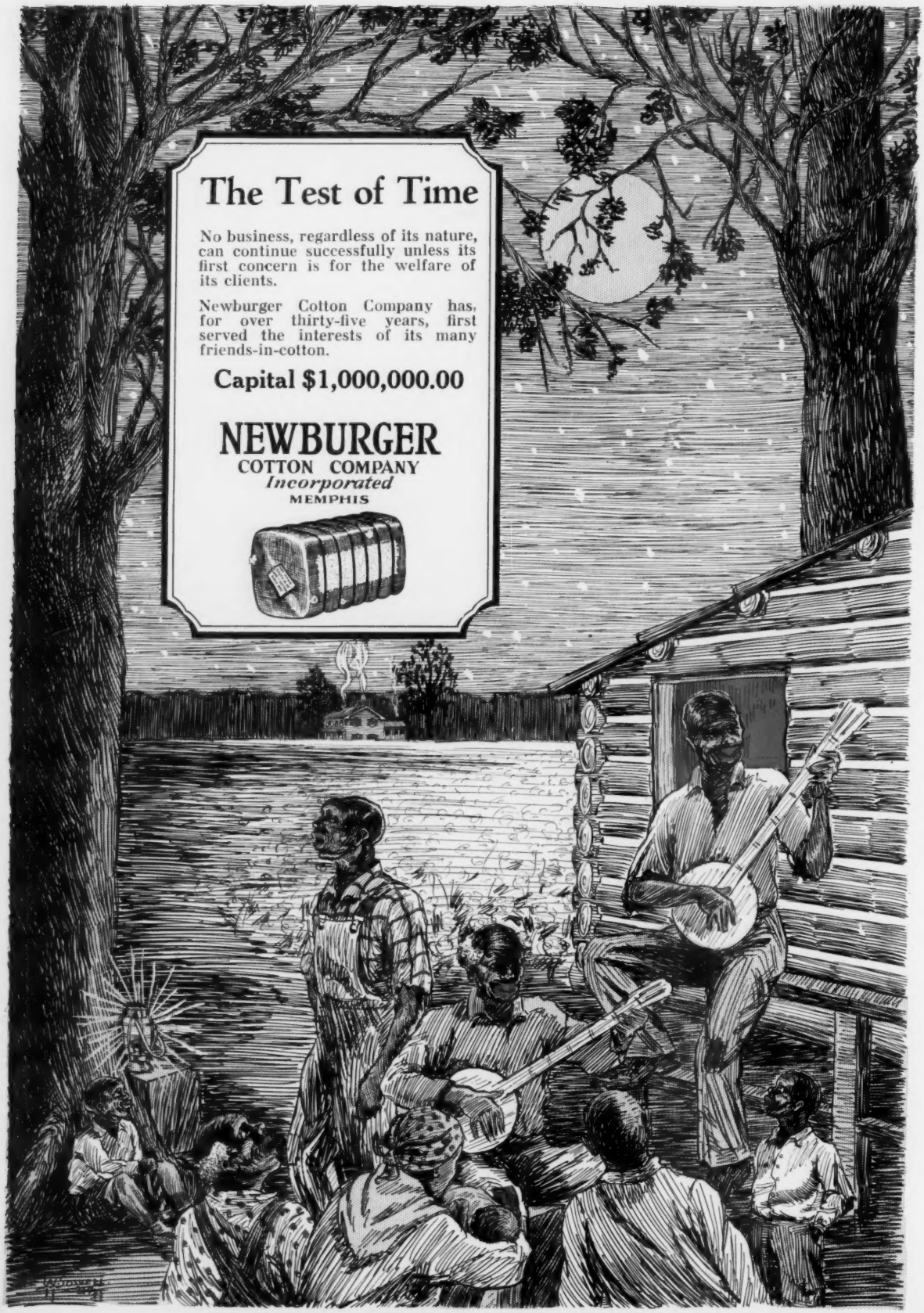
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Splendid Plans for A.C.M.A. Meeting in Richmond

Economics, Foreign Trade, Industrial Relations, and other subjects to be Covered; Excellent Entertainment Program

With Richmond as host, and a broad and comprehensive program of addresses and discussions; plans for the 32nd annual convention of the American Cotton Manufacturers Association, to be held at the Jefferson Hotel, Richmond, Va., on May 17th and 18th, indicate a profitable and enjoyable occasion. It is certain to be the most largely attended meeting ever held by the organization.

Present industrial and economic conditions, and the new determined decision of the manufacturers to improve them, are factors which will create a widespread interest, and the convention has been planned for pertinent and practical discussions of vital subjects affecting the industry.

Economics and Foreign Trade.

The first session, opening at 10:00 o'clock Thursday morning, May 17th, will be featured by a discussion of economic problems and foreign trade, to follow the president's address, by George S. Harris, president of the Exposition Cotton Mills, of Atlanta, and the report of Secretary-Treasurer W. M. McLaurine, of Charlotte. In his address, Mr. Harris, a practical mill man, will not discuss any general subject matter, but will deal with directions. The secretary's report will reflect the activity and accomplishments of the organization during the past year.

W. M. McLaurine, Secretary.

George E. Roberts, vice-president, National City Bank of New York, has been secured to discuss "Economic Conditions with Particular Reference to the Textile Industry." Mr. Roberts is not only a noted banker, but is also an economist of authority and influence.

The important subject of foreign trade, of pertinent interest to textile manufacturers at this time, will be discussed next by Dr. Julius Klein, director of the Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C. Dr. Klein is perhaps the best informed man in the country on this subject. Not only is he thoroughly equipped with facts, but he is a most attractive speaker.

Hines to Discuss Institute.

The second session, to be held on Thursday afternoon, at 3:00 o'clock, will be one of the cardinal features of the meeting.

Walker D. Hines, president of The Cotton-Textile Institute, Inc., will discuss the development and progress of the Institute. Mr. Hines always commands attention, and speaks along practical and progressive lines, and the manufacturers will be fully advised of the workings of the Institute, which has become recognized as an integral part of the industry.

Industrial Relations a High Point.

Of no less interest will be the next feature on Thursday afternoon, consisting of an address on industrial relations by W. D. Anderson, president of the Bibb Manufacturing Co., Macon, Ga. With the background of a thorough study of the subject, Mr. Anderson, speaking forcefully, fairly and impartially, will furnish a most important contribution to the convention.

These addresses will be followed by a round-table discussion, with President Harris presiding.

The annual banquet to be held on Thursday evening at 7:30 o'clock will be the outstanding entertainment feature of the convention. President George S. Harris will act as toastmaster. Music and entertainment features will intersperse the banquet courses. The only speech of the occasion will be made by Captain Patrick Irving O'Hay, "Soldier of Fortune"—which really won't be a speech at all, but an engaging adventure with him through an account of his life's experiences. Those who have heard O'Hay, and those who haven't, will thoroughly enjoy his unique humor and entertaining account of his adventures.

Misses Dozier and Potwine to Speak.

The Friday morning session will be featured by addresses by two ladies—Miss Katherine Dozier, of Pacolet Mfg. Co., Pacolet, S. C., and New Holland, Ga.; and Miss Marjorie Potwine, of Saxon Mills, Spartanburg, S. C. They will discuss, respectively, "Educational Advantages," and "Civic Evolution," as applied to the southern mill villages in which their own work is concentrated.

An executive business session, to follow these addresses, will conclude the convention.

Entertainment for Ladies.

A happy feature of the Association's convention always is the presence of many visiting ladies, and the local committee has arranged adequately for their entertainment. On Thursday, the ladies are invited to attend a luncheon at the Country Club of Virginia, and on Thursday evening, a banquet will be given in their honor at the Commonwealth Club co-incident with the banquet of the Association. Following the banquet an informal dance in which both parties will join, will be held. A luncheon on Friday, following the morning session, will conclude the scheduled entertainment.

Augusta Entertains Georgia Mill Men

Profitable Session and Golf Tournament Enjoyed; J. J. Scott Elected President

Subjects of widespread interest and importance were discussed at the annual convention of the Cotton Manufacturers' Association of Georgia, held at the Forrest Hills-Ricker Hotel, in Augusta, Ga., on April 5th and 6th. Cotton staples and methods of their improvement, safety importance in the mill, and the much-discussed Bedaux system of mill operation, as it is applied at the Thomaston group of mills at Thomaston,Ga., were among the matters covered.

The selection of the meeting place by President W. H. Hightower was a happy one, and an enjoyable entertainment program was executed complementary to the interesting business sessions. Following the convention. many

J. J. Scott, the New President.

members made trips to the Magnolia Gardens, at Charleston, S. C., which were in full bloom.

J. J. Scott, president, Scottdale Mills, Scottdale, Ga., was elected president, succeeding W. H. Hightower, president, Thomaston Cotton Mills, Thomaston, Ga. Clifford Swift, vice-president, Swift Spinning Mills, Columbus, Ga., was named vice-president. Theo. M. Forbes, secretary, C. W. Chears, traffic manager, and Hatton Lovejoy, general counsel, were re-elected to their respective positions. D. A. Jewell, Jr., vice-president, Crystal Springs Bleachery Co., Chickamauga, Ga., was made treasurer succeeding Mr. Scott.

The first session was opened by President Hightower on Thursday morning, April 5th. After the preliminaries, the reports of Secretary Forbes, Traffic Manager Chears, and Treasurer Scott were read, and then Mr. Hightower made the annual address of the president.

President's Address.

After discussing some of the association's affairs, Mr. Hightower took up a discussion of certain developments in the industry during the past year, saying in part:

"This indeed has been an unusual year—not only have we had financial difficulties, but also hard manufacturing and marketing conditions to meet, and most of us have been confronted with problems that we did not think could exist, and it has required steady hands and clear heads to hold the ship moving on a true course. Not only did these conditions exist, but we have encountered cross currents, undertows, suck holes, and even the rocks, some of which were placed by malicious hands. We have been besieged with literature trying to show the world that we were not the type of people that we hoped we were. Unfortunately, men high up in the affairs of the church have seen fit to attack our cause, and even besmirch our good names. I feel sure that most of the criticism from these officials was caused by ignorance and lack of personal contact.

"In talking a few days ago with some friends relative to the latest attack by the dignitaries of the church, it was decided that a visit by these people to the southern cities and particularly to southern cotton mill communities would contribute largely to brushing aside the veil of prejudice that must prevail in the minds of these men. I sincerely trust that it will be possible to get this contact. I shall personally be delighted to give my own time and effort toward bringing together the great men of the church and the manufacturing men of the South. If they could only realize the difference in manufacturing conditions in the South today and twenty years ago—if they could only realize that the trend has always been upward and never backward—if they could conceive that the men of the present generation have been given better opportunities than their forefathers, and last, but not least, the children of the mill villages today will be better, stronger, nobler than their own forbears—then indeed would our friends of the church retract their statements, and not until then will they fully realize the great work that the cotton manufacturers have done in helping to establish men and women in their rightful place in the world."

Following his own remarks, Mr. Hightower presented D. S. Keogh, president of The Bedaux Co., New York City, to discuss "The Bedaux System of Efficient Textile Mill Operation". Mr. Hightower explained that this system has been in operation at his own plants for some months, and that since so much interest has been manifested in it by other manufacturers, he has acceded to the suggestion of having it explained at this convention. Because of the interest current in the subject, and since Mr. Keogh's address gives the background and general method of the system, his remarks are reproduced upon page 684 of this issue.

Mr. Keogh's paper concluded the set program. Hibbard S. Busby, director of the A. French Textile School, Georgia School of Technology, Atlanta, Ga., was called upon to announce a school for cotton grading and stapling proposed to be held at Tech during the summer. Mr. Busby outlined the plans in this connection, and invited the cooperation of the state's manufacturers. Cason J. Callaway, of LaGrange, Ga., was called upon to discuss the subject and in an impromptu talk, presented some interesting thoughts in

connection with cotton.

C. J. Callaway Discusses Cotton.

"I doubt whether one-tenth of the money and time spent on manufacturing and selling has been spent on cotton buying," said Mr. Callaway. "It is almost impossible to get above the market for anything that we make, and when we can get a premium, it is hardly consequential. But there is a possibility of buying different grades of cotton at lower prices, which will answer our purpose entirely, if we know how to buy cotton. What will answer the requirements of one mill probably will not be good for another plant, but the greatest saving that can be made is through correct buying of cotton. When buying from shippers, the price of raw material is the same practically everywhere. But in the knowledge of cotton the mill will find good dividend possibilities. A cotton grader can save money by being accurate, but it is the man who decides what cotton should be bought who can make himself extremely valuable."

Mr. Callaway endorsed the idea of a cotton grading and sampling course, pointing out the value of having the yard man who handles the cotton, the overseers, and superintendent study this phase of the business. He told of a course of this kind which had been conducted by his mills at LaGrange with most satisfactory results.

After the discussion on this point, and the introduction of prominent visitors, the session was adjourned. In the afternoon a golf tournament, on the "striker handicap" basis

Theo. M. Forbes, Secretary.

was held. Thursday evening the annual banquet was held in the hotel dining room. Mrs. Julian Hightower of Thomaston, and a number of Augusta artists, entertained the diners. There were impromptu remarks by Scott Roberts, of Anniston, Ala., president of the Cotton Manufacturers' Association of Alabama, and George S. Harris, president of the American Cotton Manufacturers' Association. Dr. D. W. Daniel, head of the English Department, at Clemson College, was the after-dinner speaker. The golf tournament prize was awarded to George S. Harris.

The next session of the convention was held on Friday morning. Dr. B. Youngblood, director of the U. S. Agricultural Economic Research, Washington, D. C., was the first speaker, having been assigned the subject, "Domestic Mill Consumption of Georgia Cotton by Grades and Staples". Dr. Youngblood, however, after some preliminary remarks, read a related paper on the subject, "Cotton Spinning Utility", which covered the executed and proposed work of his organization in connection with improving cotton grade and staple.

Preliminary to his paper, Dr. Youngblood made some interesting extemporaneous remarks. He pointed out the importance of adequate compensation for the farmer for producing better cotton, showing that without proper incentive, a serious handicap in achieving the desired end would be confronted. He showed how the users of cotton can be a tremendous influence in inducing the improvement of grade by the farmer.

Dr. Youngblood explained that the cotton mills of Georgia must go outside of the state for 57 per cent of the

W. H. Hightower, Retiring President.

grades and staples of cotton used by these mills. He declared it his opinion that this amount could be greatly reduced by letting the farmers of the state know what is required, and making it attractive for them to grow the desired staples. In discussing soil fertility and its effect upon staple, he said that "the poor soils produce the biggest yields of cotton, when it is shortest length, and as you progress from the poor soils and go to fairly fertile uplands and the fertile prairies of the West, such as the black lands of Texas, you find a growing improvement in the length of the cotton. When you get to the poor lands of Texas the farmers are more insistent upon growing short lengths, but over in Texas this last year in a particular area, of 21 counties in the Northwest, where they sledded cotton, we found 18 per cent of the cotton 13/16-inch and under, a good percentage 15/16-inch, and a fair percentage above that. The Texas area did both better and worse in some ways than Georgia. They produced a lot more of that short cotton, and a better percentage of inch-cotton and better. Georgia produced a better cotton than the reputation we had heard justified. We understood that a lot of the cotton in Georgia would be of untenable length, but we didn't find but two per cent that way. The bulk was 7/8-inch or 15/16-inch."

After his preliminary remarks, Dr. Youngblood presented his paper which will probably be utilized in an early issue. Following his address, Clark Howell, editor of "The Atlanta Constitution", Atlanta, Ga., discussed the subject, "Combatting Propaganda with the Truth". In his address

he referred to recent attacks upon the industry by outside interests. While not presuming to suggest any definite methods, he did feel that some steps should be taken to present true facts to the public to off-set the effect of this propaganda.

Speaking for Dr. John R. Fain, professor of agronomy, State College of Agriculture, Athens, Mr. Westbrook of the school discussed the subject, "Growing Georgia Cotton to Meet Mill Requirements." The concluding address was made by W. H. Cameron, managing director, National Safety Council, Chicago, who discussed the subject, "Value of Cooperative Safety Methods in Textile Mills".

The final session of the meeting was held at luncheon on Friday. The report of the nominating committee, by J. A. Mandeville, chairman, was made, and officers and directors elected. The resolutions committee report, made by M. M. Trotter, Jr., presented a resolution: "That we request our senators and congressmen to exert their efforts and influence to securing a statute of limitations on federal taxes of five years or less; and to prevent the passing of the legislation now being sought by the government to permit it to reopen cases running back to 1917, which are and have been barred by the statute." This resolution was unanimously adopted.

Resolutions of regret were adopted upon the death, during the past year, of Fuller Earle Callaway, past president of the Association, and Louis L. Arnold, editor of COTTON. It was voted that a page in the year book of the association be set aside for a memorial to each of these beloved members.

Entertainment Committees.

The entertainment features were in charge of S. A. Fortson, chairman; J. C. Fargo; H. C. Chafee, who handled the golf tournament; J. C. F. Clark, Lombard Fortson, George H. Gercke, and George Blanchard. A delightful program of entertainment was also provided the ladies, consisting of bridge games, a luncheon, and automobile trips to points of interest. The ladies' committee was composed of Mrs. J. C. Fargo, chairman; Mrs. W. H. Hightower, Mrs. J. C. F. Clark, Mrs. Frank Robinson, Mrs. H. C. Chafee, Mrs. S. A. Fortson, Mrs. Norman Elsas and Mrs. Theo. M. Forbes.

"Qualities of Cotton"

"Cotton is the most important fiber known to man," states George A. Sloan, Secretary of The Cotton-Textile Institute, Inc., in announcing the results of an analysis of the qualities of cotton which has recently been completed under the Institute's direction. A report of this study is published as a pamphlet entitled "Qualities of Cotton."

"In almost innumerable ways," says Mr. Sloan, "cotton is the fabric of fashion and industry. To Americans cotton is of immense economic interest because the United States supplies upwards of two-thirds the world's supply of cotton each year. The production of the raw material, the manufacture and distribution of its myriad products provide the basis on which great American industries are established. The influence of this single agricultural product directly and indirectly upon the growth and progress of the nation has been so extensive as to give it large historical value.

"We live in a world where cotton contributes something useful from our infancy until old age and death. Throughout life we wear cotton in some form. We live in environments made artistically agreeable by the use of cotton, we sleep in cotton, we travel in cotton, we are sheltered from sun and storm by cotton, we even eat the highly refined products of the once mysterious cotton seed."

In his summary Mr. Sloan points out that cotton has significant advantages by reason of its abundance, economy, the great diversity of its usefulness, its cleanliness and great artistic qualities. It makes durable, comfortable fabrics which respond to a variety of special treatments and may be preserved for long periods without impairment.

"The world output of cotton," the analysis continues, "is approximately five times that of wool; nine times that of flax; 60 times that of rayon; and 140 times that of silk. Abundance is therefore partly responsible for the great diversity of uses. There is probably no other fiber from which such a variety of products is made—cloth so fine as to be drawn through a finger ring, so attractive as to be suitable for apparel and decoration, so heavy as to be used for sails, tents, awnings, bagging, and tires, sufficiently protective to be used as wall covering and serve as a base for plaster and paint, and strong enough for the covering of airplane wings.

"Where scrupulous cleanliness is required in such hygenic fabrics as bandages, dressings, uniforms, etc., cotton is the standard material.

"Cotton fabrics are not only inherently clean but are also easily laundered. Spots are easily removed and the fabric may be restored to its original freshness in a way which adds to its charm and comfort for wearing apparel.

"When first introduced it was a luxury, and the old Indian cottons have never been surpassed in quality or beauty by any other textile. Skilled craftsmen today are designing and producing fine cottons that have a distinct place as fabrics of fashion.

"Cotton possesses high tenacity and is responsive to treatment which greatly enhances its resistance to wear and strain. It is therefore useful where strength is an important factor.

"Fine cottons are so woven that the natural heat of the body may radiate freely, and the cooler temperatures outside may reach the body. These are sheer and light, and therefore comfortable and hygienic.

"It is also true that cotton can be woven into napped fabrics suitable for blankets and other warmth-giving articles.

"Either in its raw or finished state cotton may be stored without serious harm from deterioration. It has a further advantage in that it is not subject to the ravages of moths.

"Cotton may also be changed chemically without being destroyed. It can be rendered fireproof. It can be made waterproof and form a base for waterproofing fabrics. It possesses an excellent affinity for dyes and coloring matter.

"By its lavish bounty nature has destined cotton for a large role in the everyday life and commerce of the world. In its centuries of usefulness it has influenced not only agriculture, industry, and commerce but also the arts, the social and political life of the world."

PREPARATION of RAYON FOR WEAVING

One-Process Method—Winding from Skein to Bobbin

By L. A. Palina

The two previous articles in this series, of which this is the third, discussed the conditioning of rayon, the types of swift and bobbin to be used, and the two-process method of winding from skein to spool and from spool to bobbin for filling for the loom. This article will discuss the

Single Process Winding or Quilling.

Within the past few years there has been introduced an attachment for quilling rayon directly from the skein, thus eliminating the preparatory process of spooling. This attachment did not receive very much encouragement when it was first introduced, but several mills have tried this method out fully and have found it entirely satisfactory, especially in winding undyed rayon and in deniers not too fine. As a matter of fact, most deniers used in cotton weaving mills are above 100 and it is on these deniers particularly that the skein attachment has been tried and found satisfactory.

There has been some trouble in attempting to wind skein dyed rayon from the skein to the bobbin, but this trouble is due to the tangling of the skeins by the dyer and not to the attachment itself. No attempt should be made to try to wind tangled skeins directly on to a weaving bobbin, because any such attempts will almost always result in bad work. If the skeins are dyed without tangling, however, there is no reason why they should not be wound as satisfactorily as undyed rayon.

There are several features to this system of quilling directly from skeins, and the principal advantage is in the saving of labor. One winder tender can not wind as many pounds per day with the skein attachment as she can with the unrolling spool attachment or any other attachment used with the double process. However, the number of winder hands required for a given production with the single process is not so many as the number required for both processes on the same production. In other words, assuming that a spooler tender will turn off about 60 pounds per day and a quiller tender the same production we have two girls for every 60 pounds of net production, or 30 pounds per girl. If one girl on the single process can turn off 45 pounds per day we have only one girl for a net production of 45 pounds as against a net production per girl of 30 pounds with the two process method. It should be distinctly understood that these figures are not given as a guide for what a spooler girl or winder girl should produce; but merely given as an illustration of the way in which labor is saved in the single process method.

In addition to the labor saving there is quite a saving of floor space, because of the elimination of the spooler frames, and there is no investment tied up in these machines nor in spools.

Method of Operation.

In Fig. 1 is shown the method of mounting the swift above the winding machine. It can be seen that this attachment must be equipped with a compensator, as in the case of any unrolling attachment, and this compensator is shown in this sketch. The tension generally employed is that of the combination type whereby the friction band is attached to the compensator by means of a coil spring. There are of course means by which this friction on the friction drum can be adjusted.

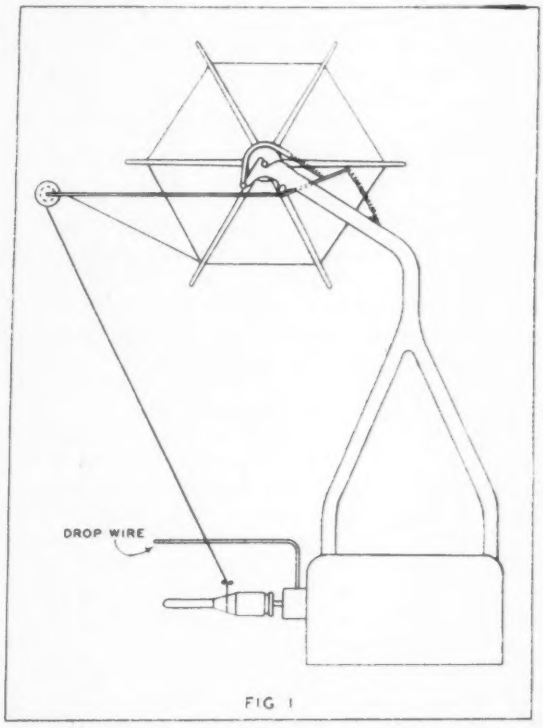


FIG. 1

It is believed by most mills who use this attachment that a better and more uniform tension is available than with any of the other attachments. Due to the large radius of the revolving skein, the amount of friction applied to the friction hub on the swift is naturally more than on the unrolling spool, but since there is no appreciable decrease in this radius as the skein runs empty, there is always a uniform tension from one end of the skein to the other, which is not the case in unrolling a spool. The type of swift used with the single process method is generally the collapsible type, which has been described in a previous

article. This type is used because it always runs concentrically and it is quicker to apply a skein to this type of swift than to any other. There is no doubt but that the winder tenders have to be more careful in applying a skein to the swift on a winding machine than on a spooler; because on the winding machine the spindle is positively driven, and if there is a tangled place in the skein the end will break. On the spooler frame if there is a tangled place in the skein the friction drive will let the spooler spindle slip, and as a general thing the end will not be broken. The skeins as now turned out by the different rayon manufacturers, however, are so well formed that there is no trouble experienced from tangled skeins in winding directly from skeins to bobbins.

As for the conditioning or oiling of the rayon, the same conditions will apply to winding bobbins directly from skeins as would apply to spooling. In our mill we tried both methods; that is, winding the rayon without oiling and winding with oil, and we found in most cases that the advantages of oiling the silk were hardly sufficient to offset the cost and inconvenience of the conditioning process. Also by taking the skeins directly from the case to the winder tender, one handling is eliminated, and it is generally conceded among rayon men that the less handling there is to rayon the better the final product will be. Incidentally, this is one of the reasons why some people prefer the single process of quilling direct from skeins. It eliminates the handling of the rayon in the spooling operation and they believe that naturally the rayon is in better condition without this handling.

Less Operatives to Train.

Another point which some mill men like as regards the one process is that there are less operatives to train up in handling rayon, and furthermore there is not the inconvenience of having to balance the production between the spoolers and the quillers. It is not desirable to carry a great stock of spools between the spoolers and the quillers and with only a small stock there is frequently the case of one process getting ahead or behind the other and this causes inconvenience to the mill as a whole.

After the descriptions of all these types of attachments as given, the question naturally forms in a mill man's mind as to just which is the best method and attachment. Obviously this question can not be answered in a way which would cover all conditions. If there were any one attachment best for any condition this attachment would quickly displace all others on the market. There are conditions which would make the two process method preferable. A mill might be winding several different deniers of rayon from the very fine deniers upward and they also might be winding pure silk of several different kinds. There are a number of mills with winding departments which have a great variety of work to handle, and it is our belief that for a mill of this character the two process method is preferable. The spoolers and the spool attachments on the winders can be used for almost any type of rayon or silk, and this can not be said of the single process method, whereby the bobbins are wound directly from skeins.

However, there are a great many mills which wind only one or two deniers of rayon and do not touch any pure silk or any dyed rayon. Under conditions of this kind, it would appear that the single process would be preferable.

In winding bobbins directly from skeins, the speed of the winding spindle must be lower than with the over end attachments and possibly a little lower than with the unrolling attachments. The reason for this is that the swift, upon which is mounted the skein, must be put in rotation by the pulling of the yarn from the swift and with too high a spindle speed there is danger of breaking the end in starting up the swift or more serious still, there is danger of stretching the silk and thus causing a shiner in the weaving. Some winder girls learn to start the swift to rotating with the right hand at the same instant as starting the spindle to rotating with the left hand and in this way some of the inertia is overcome. Where winder hands are trained to do this it is of course practical to run the spindle at a higher speed. As a general thing, we believe the spindle speed in winding from skeins should be about 1600 r.p.m. With the unrolling attachment in winding from spools this speed can possibly be increased to around 1800 r.p.m. or possibly a little higher with well trained operatives who can start the spool to rotating the same instant as the spindle is started. With the over end attachment a speed of 2,000 r.p.m. ought not to be excessive on the heavier deniers, provided the filaments are not injured by the application of friction to the rayon. Oiling the silk will aid to prevent injury to the filaments in winding from the over end attachments.

Weaver's Knot Preferable.

The question of which kind of knot to use on rayon is of prime importance. The weaver's knot is recognized as the smallest knot which can be tied, and it is therefore accepted as best for rayon winding. The method of tying the weaver's knot in winding rayon, however, is entirely different from that which is familiar to all weavers and spooler hands, even though the finished knot is exactly the same. It would be impossible to explain this method even with illustrations. The use of scissors by all winder tenders should be compulsory. The type used is very small, such as embroidery scissors, and the girls very quickly learn to carry these scissors on the little finger of the right hand and in the palm of the cupped hand. In clipping the ends from the knots, the blades are operated by working them open and shut with the thumb and first finger of the right hand. To operate the scissors in the usual way of inserting the thumb and finger in the eyelets of the handles is the natural way for a beginner to use, but they should be promptly broken of this habit and taught to carry the scissors on the little finger of the right hand and to operate them by pressing on the blades themselves.

One of the prominent causes of shiners in the woven fabric is from knots made either in the spooling or winding of the rayon. Even weaver's knots will sometimes cause shiners if they are allowed to be wound on the traverse or conical surface of the wound bobbin. Obviously, therefore, the tying of any knots whatever on the spoolers will cause these knots to be placed on this conical surface of the wound bobbin and will therefore cause shiners. This should not be construed to mean that knots should never be tied on the spoolers. Many mills are weaving rayon filling with the two process method and having very little trouble from shiners, and many of them are using the ordinary spooler or "chicken head" knot. The answer is that on some fabrics shiners do not show up with the prominence that they do on others, therefore it is not as necessary to take the pains with the handling of the rayon on those fabrics as it is on fabrics which show shiners prominently. Some fabrics may appear to be perfectly woven when the

cloth is inspected in the cloth room, but after being finished they may be full of shiners. It is on a weave of fabric of this nature that every caution known to a mill man must be exercised to prevent shiners, and in this case it would probably be wise not to allow the spooler tenders to tie any knots, but to merely lap the ends around the spool and let the winder or quiller tender tie the knots. It would naturally be inferred from this that the single process of preparing rayon would be preferable in a case like this.

With either the two-process method or the single process, the knot should always be placed on the outside of the traverse or conical surface of the bobbin in the quilling operation. If allowed to be covered up on the traverse of the bobbin, there is danger of the yarn hanging up on the knot in weaving before the knot itself comes from the bobbin, and this is probably one of the main causes of shiners.

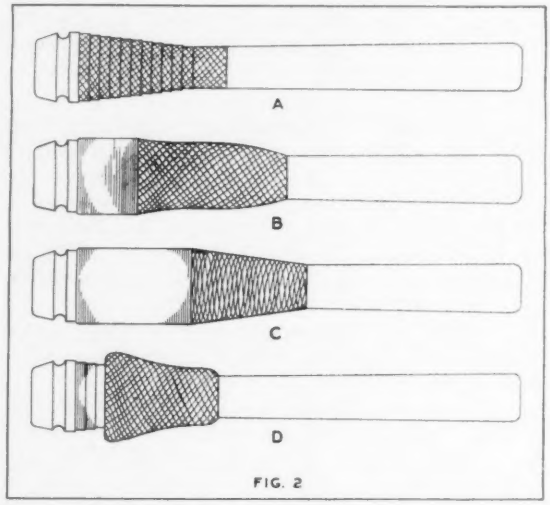


FIG. 2

It is a simple matter to train the winder girls to lay the knot on the outside of the wound bobbin before the spindle is started up, and it is then out of the way where nothing can catch on it before it winds off into the cloth. It may be a little trouble to train the winder girls to always place the knot as described, but the saving of shiners, and therefore seconds, will more than pay for this trouble.

Different Defective Winds.

It probably would be well at this juncture to call attention to some of the small troubles which are constantly being run into in the winding of rayon. One of the most common causes of badly wound bobbins is from the length of the traverse of the winder not coinciding with the length of the cone base on the bobbin. This was mentioned in a previous article but a repetition of such an important point would not be amiss. If the traverse of the winder is too long the yarn will be wound out upon the barrel of the bobbin at the beginning of the bobbin, and this may cause some trouble in the delivery of the yarn from the bobbin in the shuttle. Sketch *A* in Fig. 2 shows a bobbin being started up with the traverse too long. In the Sketch *B* can be seen the result of this after the bobbin has been about one fourth filled up. It can be seen that the perfect cone of the winding surface has been destroyed. This may seem to be of no importance, but the smoothness of the delivery of the yarn from this bobbin is obliged to be affected. When the end is coming from the steep slope on this bobbin the delivery must of necessity be freer than when it is coming from the bottom of the traverse. This may even reach a point where the yarn will slough off in ringlets as it comes from the steep slope of the bobbin, and such results would of course show up in the cloth. If the traverse motion of the winder is always set to give a traverse exactly equal to or, at the most, about one eighth inch longer than the length of the cone base of the bobbin, a perfectly formed bobbin will result and better weaving will be obtained.

Another point to be carefully watched is to see that the winder girls are trained to push the traverse motion on the winder spindle all the way back toward the base of the bobbin before the bobbin is started. This traverse motion is mounted on the traverse bar, which is parallel to the spindle, and there is a collar or some other means of stopping this traverse motion when it is pushed back to its starting position. The girls should be trained to be sure that the traverse motion, that is, the traverse wheel with its holder, should be back as far as it will go before a new bobbin is started. Failure to do so will cause a bobbin such as is illustrated in Sketch D in Fig. 2. The correctly wound bobbin is shown at *C*, Fig. 2.

Rayon Bobbin for Automatic Looms.

In all the foregoing paragraphs it has been assumed that the bobbins were being wound for non-automatic looms. A great deal of progress has been made in weaving rayon successfully in automatic looms within the past few years, so that if the bobbins are for this type of loom they must naturally be made for automatic looms. Fig. 3 shows the type of bobbin which would be used in that case. The same general principles apply to this bobbin as to the cone base bobbin, except, of course, that the cone base is not used, and a different method is employed to hold the bobbin in the shuttle. The bobbin is fitted with rings exactly the same as for other automatic bobbins. The winding machine requires a slightly different attachment for winding the automatic bobbin, because of the fact that there is no cone base, and consequently there must be a means of building up the base of the bobbin from the barrel of the bobbin outward. This attachment is generally known as the "pin cop" attachment and is the same attachment as is used to wind pure silk or rayon on paper cops.

RAYON BOBBIN FOR AUTOMATIC LOOM
FIG 3

The actual preparing of the rayon for automatic loom weaving would be exactly as for non-automatic looms, so that all the different points discussed in these articles would apply equally as well to winding for automatic loom weaving with the exception of the bobbin.

(This is the third of a series of articles on this subject. The next, covering rayon warp preparation, will appear in an early number. It will conclude the series. Copies of the February and March issues of COTTON, in which the previous installments of this series appeared, will be furnished upon request so long as copies are available for distribution.—The Editor.)

Cotton Waste and Its Utilization

Classifying Waste by Machines and Types. Methods for Working Waste by the English System With An Outline of the Machines Used

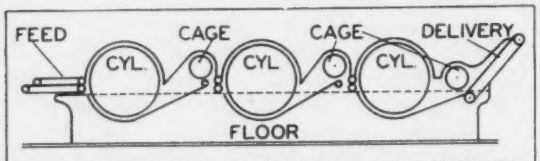
BY ALBERT E. LEWIS.

PART ONE.

Cotton waste spinning and manufacturing has recently developed into a very important industry. Waste may be termed the by-product of the cotton industry. At one time known as "Shoddy," it has won greater interest and instead of converting old mills and machinery to work waste, we now find special designs of mills and machinery. This has led to greater specialization and, therefore, to greater efficiency.

One would have difficulty in finding any loss due to waste under modern conditions today, especially in countries like South America, India or China, where the whole operations are self contained. The writer can vouch that in one mill the only waste that cannot be used is actually sold in a dust like condition as a fertilizer for agriculturists.

As will be readily understood the amount of waste made in a cotton spinning mill is a very important item, and should receive the utmost attention from the management and employees of the mill. Otherwise the profits of



COP BOTTOM MACHINE, 3 CYLINDERS
FIG 1

the mill will suffer materially. There are two kinds of waste produced, hard and soft.

Hard Waste is that waste which has received final twist and may be said to be produced at the spinning frame and subsequent processes, i.e., mules, rings, doublers, winders, and weavers' cop bottoms. The clearer wastes from mules and rings is classed as soft wastes, and a special operation is necessary to separate the hard ends from the soft or partially twisted material.

Soft Waste may be classified as all waste made prior to the spinning frame, i.e., opener, scutcher, card, combing, drawing, and speed frames. This includes licker-in and cylinder fly, flat strips, roller laps, sweepings and comber waste.

The following classification gives an idea of the various wastes made in a spinning mill:—

Hopper Feeders. Seed, leaf, sticks, sand, with a percentage of fibers. In some mills this waste is thrown out, but in others, more modern, even this is treated by a shaker, which separates the fibers from the other impurities. The "shaker" is described later.

Openers and Scutchers. Droppings from under the dirt bars, etc.

Cards. Flat strips, cylinder and doffer strips, licker-in fly, web, lap-ends, broken pieces of sliver, cylinder and doffer fly, and flocks accumulated on the frame work.

Comber. Seeing that at least 15 per cent of waste is made at this machine, it is a most valuable waste. It can be used for the higher counts of waste spinning or low counts of ordinary spinning.

Drawing and Speed Frames. Sliver, bobbin and clearer waste, roller laps, creel waste and piecing up waste. The sliver, bobbin and piecing up waste is generally returned to the mixing, the two latter after being treated by the roving waste opener:

Spinning Machines. Underclearer or crow waste, top clearer waste, roller laps, bobbin waste and piecing up waste.

The wastes from the subsequent processes represent a considerable loss to the firm, because of the time and labor spent in the mill processes. These wastes contain the best fibers, but require the most treatment in waste spinning owing to their highly twisted nature.

In addition to the foregoing we have the sweepings from all places in the mill, oily waste, etc., whose value varies according to their nature.

Amount of Waste Made at Each Machine.

These figures are only approximate as the amount of waste depends on (1) condition of machinery; (2) cotton used; (3) diligence and efficiency of work people; and (4) counts spun.

An approximate agenda of waste made is given made from Fair American cotton.

Opener	3.5 %
Scutcher	1.75%
Card	5.5 %
Drawing Frame	1 %
Speed Frame	1.5 %
Spinning	2 %

There will be an invisible loss up to 2 or 3 per cent, so that an average percentage of waste will be from 14 to 16 per cent.

There are various ways of treating cotton waste, up to the waste finisher card. After this machine the major divergence of operations takes place. There are two main systems of waste spinning known respectively as the Preparation and Condenser systems.

The Preparation system usually makes a stronger yarn in counts 10s and above, but the yarn is not so even and soft. This, too, is usually made from hard and soft wastes, and is used largely by rope makers, and for certain coarse fabrics not required for raising. It is cheaper to produce than condenser yarns.

The Preparation System.

Summary of machines used. Breaking up machines. Single beater hopper and scutcher. Breaking carding engine. Derby doubler. Single finisher carding engine with four can coiler to make slivers for slubbing frame. Slub-

bing frame. Self acting mule, with upright creel arranged to take bobbins from slubbing frames, or ring frame with creel adapted to take similar bobbins.

It is impossible to draw short fibers by means of roller drafting and therefore the preparation yarn is always more irregular and lacks the fullness and roundness of the typical condenser yarn. The condenser system produces a full, level and soft spun yarn, and this system is used also for short stapled cotton besides waste spinning.

The Condenser System.

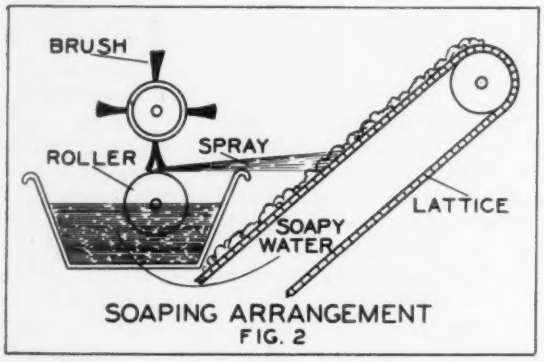
Summary of machines used for counts 2s to 5s, (soft waste). Willow with patent feeder. Thread extractor (if card sweepings used). Cards, i.e., automatic feeder, breaker card scotch feed, finisher card with leather tape condenser to produce two bobbins with 32 threads each for mule or 4 bobbins of 16 for 3 inch gage ring frames.

Grading and Mixing the Waste.

In England it is customary to sell the whole of the waste production for a period of three, six or even twelve months ahead to dealers who collect, grade and distribute to the different users according to requirement. Care must be taken by the waste spinner when buying this waste, as the dealer is not very particular about mixing wastes spun from good length cottons of 60 to 80s counts, with waste of 10s or even coarser.

Obviously, better results will be obtained if such variations can be reduced. The manufacturer would obtain greater satisfaction, by keeping the fine waste separately from the coarse, and mix them after they have been broken up.

It is unreasonable to expect the cop bottom machine to break up satisfactorily wastes containing great variations



SOAPING ARRANGEMENT
FIG. 2

in twist without one waste receiving more treatment than the other. Either neps or hard ends, that is ends being allowed to pass through without being broken up, are made. Therefore it is better to have mixings kept distinct, or separate, until after opening, and then unite them in the stack.

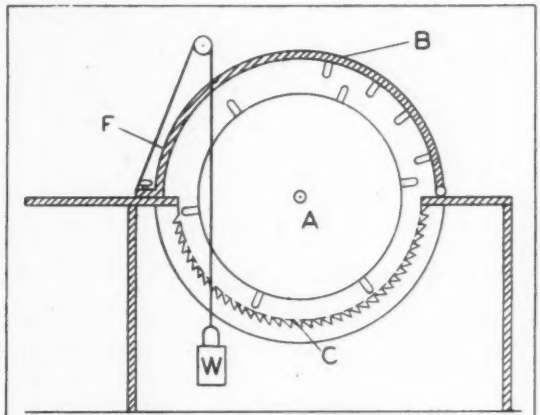
An average sized waste mill of 12,000 spindles, using the Condenser System, will produce roughly about 30,000 pounds of 8s average in 48 hours. It will be easily seen that ample room is necessary to stack the wastes. As much as 50,000 pounds is not uncommon for one mixing, and it is advisable to use these large mixings to get a thorough blending of the fibers. It is better to make two or three of these large mixings and use them alternately. This allows of intimate mixings, and it is advantageous that the different wastes are distributed horizontally in the stack and taken away in vertical sections, if possible.

Another way is to have two or three large mixings and feed them to different breaker machines, and then be mixed in the stacks as mentioned above. These systems ensure that a uniform color is obtained. It is absolutely essential that the waste must be dry, and so board floors are preferable on which to stack it.

The best condenser yarn is spun from hard waste of about 28s to 36s cop bottoms. In view of the scarcity of good cop waste, many people use a good class comber waste to aid the spinning capacity of the finer counts on the condenser system. Many of the lower classes of cotton (not waste) like Indian, Chinese and Peruvian could be used to advantage for the making of flannelettes, blankets, towels, shawls, etc., by this system.

Running Down Machine, or Preparing Machine.

In the hard waste mixing room a running down machine can be advantageously employed. It consists of a hard wood lattice feed, a pair of feed rollers covered with toothed discs which can be removed individually when



OLDHAM WILLOW
FOR SOFT DIRTY WASTES
FIG. 3

broken, an iron cylinder covered with hard wood lags filled with strong steel teeth, an iron doffer covered with metal plates fitted with hardened and tempered steel teeth, two iron calender rollers, a starting and stopping motion for doffer and feeder, iron cover over cylinder and a cast iron grid and sheet iron casing underneath fitted with a door for cleaning purposes. As the waste is stripped from the doffer by the calender rollers it falls on the floor and is pushed down a hole to fall behind the breaking up machines. The effect is to loosen or comb the waste so as to be more readily broken up, and at the same time take out any foreign substance which may be in the waste.

This machine will open about 34,000 pounds in 40 hours and takes 12 h.p. to drive.

Cop Bottom Machine.

These machines are used for hard twisted waste, as the name implies and since this class of waste is so hard they are constructed with from one to eight cylinders as necessity requires.

Feed rollers and dust cages are used with each cylinder with lattice, feed and delivery ends. Special features of this machine are the patent welded wrought iron cylinders mounted with hard wood lags fitted with hand forged steel teeth, steel cylinder shaft with hardened necks, reversing

motion to feed rollers and lattice creepers, patent bearings to all feed rollers, improved self oiling cylinder pedestals, and ball or roller bearing pedestals.

The patent bearings to the feed rollers have been introduced in order to increase the rigidity of the feed rollers in the middle. This prevents the material from being plucked through, by holding the waste firmly while being opened by the cylinder.

The rollers are heavily weighted by means of levers and weights, 500 pounds on the first pair and 250 pounds on proceeding pairs. The cylinder makes 800 r.p.m. or about 7514 feet per minute, and has about 10,000 spikes to each cylinder. Although fans are placed on the machine to draw the waste forward, some people prefer to run without them, as they contend that there is sufficient air current set up by the cylinder to cause the waste to pass to the dust cages and forward to the next pair of feed rollers.

It is not always the custom to try to attain a given weight on the dust cages as on the scutchers. The feed rollers are run at different rates, the front pair being the slowest, driven by a 14-tooth wheel and the last by a 22-tooth wheel. The setting of the rollers should also vary, the first pair being set at ¼ inch to cylinder and the last to ⅛ inch. The roller reversing motion provided on the machine is to prevent choking, and also to confine fires to the cylinder, if caught in time.

Attached to the delivery end of the machine is a soaping arrangement. Its purpose is to cause a spray of soft soap and water onto the opened waste on the delivery lattice. This soap and water in the proportion of one pound to the gallon is boiled together in a special tank, and is carried to the breaking-up room by means of pipes. Each machine has its own tap which can be turned on or off according to the running of the machine. The soap water is run into a small tank with a regulating bulb and tap, and then passes into a small tank over the lattice delivery. In this tank a partially immersed iron roller revolves at a slow speed. This picks up some of the heavy liquid which is constantly brushed off in a fine spray by the quickly revolving roller brush, driven from the cylinder. Soap water plays an essential role in the production of the waste yarn. It helps to solidify the waste, keeps the short fibers from flying about, adds weight, and assists the final spinning process, by acting as a substitute for the natural wax of the fiber, lost during the first processes of carding and spinning.

It takes about 30 h.p. to drive a 6 cylinder machine, the production amounting to 5000 pounds per machine in 48 hours. Five machines will be necessary to run a mill of 12,000 spindles using 25 per cent comber waste on the final yarns.

Care should be taken to cope with the great danger of fire in the room where this operation takes place.

From the breaking machines, the cotton is conducted into the mixing room by means of specially constructed trucks.

The cotton should be allowed to rest in the mixing room for at least two days to allow for the absorption of the soap water.

Common faults which occur on the breaking machine are hard ends and neps. Hard ends are threads that have been taken through the machine without sufficient disintegration. This may be caused by the roller flutes being worn. Care should be taken to see that the front cutter plate is not worn, and is set to a 16s gauge to the cylinders. Neps are caused by the incorrect setting of the back plate, which acts as a stripper and should be set to give 1/16 inch clearance, otherwise the fleece may be carried completely around the cylinders and nepped.

For the comber waste, which is used with the hard waste, a comber waste opener is employed. Certain people advocate that 25 per cent be added to the hard waste to obtain the best results, for 8 and 10s at any rate. This machine consists of a lattice feed and feed rollers, a spiked cylinder 70 inches in diameter, with spiked rollers on the top, a four winged leather clearer, a perforated zinc doffer which acts as a delivery roller in conjunction with a lattice delivery, and delivering the cotton into the trucks. A soaping arrangement is also attached on this machine.

Crighton Openers and Scutchers.

These machines when used for waste spinning are made to *open* the cotton, cleaning being of secondary importance, although, of course, some dirt is extracted at these machines. The construction of these machines is practically identical with those machines used for ordinary spinning.

Oldham Willow.

This machine is used for the soft dirty wastes, and only in very exceptional cases for hard waste. It is well adapted for opening and cleaning short staple cotton and wastes such as blow room droppings, card fly, strips and sweepings.

This machine is about 4 feet, 8 inches wide, with a cylinder *A* 4 feet in diameter, which is fitted with spikes with blunt ends. These spikes are about 4 inches long. There are from 6 to 10 rows of spikes. The cover *B* also has 4 rows of spikes which are placed so as to miss the spikes of the cylinder. The under casing consists of grids or bars *C* and the front portion *F* is hinged and balanced by weight *W*.

Stepped pulleys are sometimes employed, so as to give more effective control over the machine, and arrangements are fitted which govern the time allowed for the tearing action to proceed. When this time has elapsed the door *F* opens and permits a fan to draw the cotton forward between a cage and the delivery lattice. It will be understood that the waste may revolve around on the teeth of the cylinder more than once, which is usually the case on some types of beaters.

Willows are still sometimes fed and taken out by hand, but the better method is to have feed and delivery lattices. The speed of the cylinder is about 350 r.p.m., and uses about 3 h.p.

[This is Part 1 of an article in three parts. Part 2 will appear in an early issue.—Editor.]

Southern Textile Meeting at Wrightsville Beach, June 15-16.

Secretary J. M. Gregg has announced that the summer convention of the Southern Textile Association will be held at Wrightsville Beach, N. C., on Friday and Saturday, June 15th and 16th. As usual, an interesting program will be arranged, and splendid entertainment provided. L. R. Gilbert, manager, Audrey Spinning Mills, Weldon, N. C., is president, and Carl R. Harris, assistant superintendent, Inman Mills, Inman, S. C., is vice-president. This is the annual meeting, and election of officers will be held.

High Cost of Merchandising

BY LUTHER H. HODGES AND HARRIET L. HERRING.

The article below is one of a series which has to do with the fundamentals of business, or, more properly known as Industrial Economics. These articles are being published from month to month. Each one is a unit in itself, although forming an integral part of the entire series.

Practical mill men like practical material and these articles are designed to meet the needs of textile operating executives who are interested in knowing more about the laws governing business and industry. The entire series has already been used by a large cotton mill organization in the South in its educational work, and this organization found the material to be very practical and effective.

Each article lends itself to discussion by groups of mill men, as well as being helpful and interesting reading. Naturally the articles are brief and in attempting to cover this large field, only the most important points have been considered.

Forty-nine cents out of every dollar we spend for food, furniture, clothes and so on, according to Silas Bent in a recent article in the *New York Times*, goes to pay the cost of marketing. It does not go for the materials in the article, nor for the cost of manufacturing it, but for putting it within your reach. That is a staggering statement! Other writers and students of business and marketing estimate that 25 per cent to 60 per cent is taken up in getting the product to the consumer after it had been made or produced.

The Farmer and His Potatoes.

Such a condition has caused much grumbling and criticism on the part of consumers and producers. They have argued that it was unbelievable and should be condemned. There is a fitting story told of a woman who while preparing potatoes for her evening meal found a note stuck inside of one of the potatoes. Naturally she was curious so she read the note which was as follows: "Dear Madam: This note is written by a farmer who sold the bushel of potatoes which is now in your possession. I would appreciate your writing and letting me know what price you paid for the potatoes." The woman graciously wrote the farmer that she had paid $3.61 for the bushel of potatoes. The farmer laconically replied: "That's funny, I sold the potatoes for 31 cents a bushel and the freight from my farm to where you are can't be more than 30 cents. Where the ——?? did the three dollars go?"

This particular story was repeated by a clothing firm who was selling direct to consumers and was used to illustrate the great "spread" between the producer and the consumer. The firm in question made the statement that consumers over the entire country were beginning to realize that a tremendous amount of money is being wasted upon middlemen. In other words they say the public is waking up to the fact that they are paying a non-productive overhead for commodities.

Whether or not such statements as mentioned are common may be questioned, but we can truthfully say that we need to give more study and thought to marketing, or the method of getting our commodities to the consuming public. People do not understand the intricate details and problems which affect the marketing of products. The genius and enterprise of American business men have been centered in mass production, in efficiency in manufacture, and the distributing end has been let alone. A leading economist of the country makes the statement that great rewards lie in store for the person who can devise new and better ways of marketing our goods. His genius will be honored with that of the inventor and the promoter.

What is Marketing?

There is so much popular misunderstanding, or lack of understanding, about this question of marketing that it might help us to analyze just what it is, what service it performs. Marketing is a form of production. Just as we discussed in a former article any activity that assists in getting a commodity to a consumer, that renders a service is a part of production. Marketing performs several different functions of production, such as the function of time, place, quality and quantity. These are illustrated in the case of the place function by transferring wheat from the wheat section of the country to the place where it is most needed. This great quantity of wheat must be stored and distributed later on, so besides the transportation item, there enter in such marketing agencies as commission men, elevator operators, brokers, jobbers, wholesalers, retailers, etc.

Wheat or cotton, as the case may be, is harvested in a short period of time but must be used over an entire year. Therefore, the product must be stored for safe-keeping, for preservation from fire, theft and deterioration. This function of time is another definite and important phase of marketing. The problem of storing is very important and its magnitude is visioned when we hear that over a million car loads of products are stored in cold storage plants alone and this does not consider the private meat refrigerating plants.

Some sections of the country raise or produce certain commodities which are demanded in other sections. The function of marketing is to get the desired product to the consumer. In addition to this quality function of getting the proper goods to the people who demand these goods, marketing performs a more distinct service of grading and classifying commodities. For instance, one mill uses an altogether different grade of cotton from that used by another mill and the types demanded by these mills are secured by the agents of marketing. Proper grading reduces marketing costs by permitting sales by samples or by description without the time and expense involved in the inspection of goods. The trading on exchange for future delivery is done by the medium of commercial grading so that a buyer can purchase by description or sample for future delivery. All of us know the oft repeated story of the farmer who sells you a peck of nice potatoes and you find that the "nice" potatoes are all on top. This same farmer sells these same potatoes, big and small, to a jobber and it's the jobber's function to sort and grade them.

There is another function of marketing best known to us and most easily illustrated. This is the service of function of quantity. A consumer cannot use large quantities. For instance, we buy just a quart of oil for our Ford, we buy one or two tons of coal and not a whole car load. We buy one half dozen oranges instead of a crate, and so on. The agencies of marketing are most necessary to make such things possible and consumers should realize it.

An Illustration of the Details of Marketing.

The writer in the *New York Times* to whom we have referred gives an example of the details of marketing a product and by this method attempts to answer the objections to the high cost of marketing. The product is a bottle of pickles containing eight pickles and costs a quarter. In addition to the pickles, the buyer gets a little bit of pepper, cinnamon and spices. Is that all? No, he gets a glass bottle, two labels, a metal top lined with cork and has the whole thing delivered. She pays for transportation, for the clerk's time, for the cost of keeping the bottle on the shelf and for the paper in which the bottle was wrapped. She paid for the shipping. Small item? May be! The spices came from Madagascar, Ceylon or Java; the cork from Africa, the metal had to be smelted and made; the sugar came from Cuba perhaps. There was the transportation of apples to a cider press for vinegar, thence as vinegar to the pickle factory, to the wholesaler, the retailer. Steamships, trucks and trains added in getting the jar to the consumer. In the meanwhile, there is interest on buildings, warehouses, etc. If customer demanded a certain kind of pickle, she helped pay for a national advertisement in a magazine, or on a billboard.

In addition to all these things, there are the infinite details of labor and supervision and direction of the many items that go to make the final, perfected bottle of pickles. The same story in less detail could be told of blankets and ginghams, rugs and towels. Imagine yourself a person on the Pacific Coast buying blankets made in Spray, N. C., which selling from the mill at $3.00 finally reached the consumer priced at $7.50. This is a profit of 150 per cent which seems to be too much. But the mill maintains a New York sales office costing thousands of dollars a year. It has high class salesmen on the road. Perhaps this particular blanket was sold to a jobber or wholesaler who also maintained a New York branch or at least sent buyers to this central market.

The goods are routed by rail and water to San Francisco. From the dock at San Francisco they are carried to a warehouse and later to the assembly room of the jobber or wholesaler. It is then listed, inventoried, transferred, checked and assembled with other types of blankets and dry goods and shipped to a retailer in a small town nearby. Practically all these details mentioned are repeated at the retailers and when the housekeeper purchases this blanket, she has paid for all the items listed and many others not mentioned. She has paid for all the services of "middlemen".

What is the Middle Man?

In discussing this problem we want to know what the middleman does. We have referred to him in our illustrations but briefly; what is his function? Why not go direct from producer to consumer. The middleman is supposed to bridge the gap between the producer and the ultimate consumer and render a real service. He is to perform the time and place functions to which we have referred. In the capacity of middleman, he may be a commission man, a jobber, a wholesaler, a retailer, or he may even be all these combined. That is what causes the great criticism among producers and consumers. The middleman causes too great a spread and increase in final cost. In most cases the middleman must render service or be eliminated. He is not supposed to exist beyond the point where he renders a definite and satisfactory service. But there are exceptions to this theory. In some lines the middlemen are still hanging on through their "organization" and will not be shaken off, even though they are not needed.

The middleman has existed for ages and he has until recent years been a "King" in marketing problems. Transportation and advertising were in times past so difficult that someone had to bridge the great gap between producer and consumer. The middleman came to the front and remained! Conditions are now changing. The fundamental task of marketing is to lower cost of service to society and still keep the service adequate and satisfactory. If this can be done without the middleman, it will be done.

So the middleman's position is radically changing. The consumer is close to the manufacturer and is trying to get closer. Some of the ways in which the jobber or middleman is being eliminated make up an interesting part of American business romance. It is a development which is most interesting. One process is by combination. The packers have their own warehouses and cold storage houses for various cities and thereby cut out wholesaler or jobber. Ford owns his rail roads, his assembly plants, etc. Big department stores get so large they make deals and arrangements with manufacturers direct.

Another method is by Cooperation or, in colloquial terms, by the "Co-ops." Notable among this type is the California Fruit Growers organization. They market their own product, do their own advertising and distributing. In Minnesota alone there are 4,000 farmers' organizations doing an annual business of $200,000,000. The United Drug Company is a manufacturing and wholesale organization combined and the whole thing is owned and run by 3,000 or more retail druggists. We are all acquainted with the fact that a increasing number of manufacturers of shoes, clothes, etc., are establishing their own retail stores—American Woolen Mills for instance.

Direct Merchandising.

The tendency is toward direct merchandising where the middleman is left out. There are three types of producers which illustrate direct merchandising. (1) The small producer who sells locally. (2) Those who deal in specialties where services are required as in the case of sewing machines and pianos. (3)) The mail order houses like Sears Roebuck, Larkin, and others. One of the most radical evidences of the trend toward direct merchandising in recent times was the announcement and execution of a plan whereby the Oliver Typewriter Company cut their price in half and sold their machines direct.

Although the tendency is toward direct merchandising, yet there is still a great variation in the plans of various producers. There seems to be no standard method of marketing—each company works it out in its own way. Some producers or manufacturers sell direct to retailers as in the case of shoes, ready made clothes, automobiles, etc. Especially is this true in units of larger value. There are other companies which sell direct to wholesalers. These generally sell groceries, dry goods, drugs, hardware, etc.

Some companies, particularly textile plants, use the entire middleman scheme and sell through commission houses or selling agencies, thence to jobbers, wholesalers and re-

(*Continued on page* 742.)

Carding and Spinning Discussed at Georgia Meeting

Moisture Content; Picker Room Humidity; Opening Systems; Continuous Card Cleaner; Cork Rolls; Spinning Break Draft; Other Subjects Covered

Based upon a somewhat slightly different method of discussion, and notable for the amount of genuine information developed, the Spring meeting of the Textile Operating Executives of Georgia, held in Atlanta, Ga., at the Georgia School of Technology, on Tuesday, March 20th, was a distinct success. Incidentally, the largest attendance on record for the organization was present.

Frank S. Dennis, manager, Consolidated Textile Corporation, LaFayette, Ga., presided as general chairman. the major portion of the meeting, however, being under the direction of E. H. Rogers, agent, Fulton Bag & Cotton Mills, Atlanta, and J. W. Hames, superintendent, Exposition Cotton Mills, Atlanta. The morning session, after the preliminaries, was turned over to Mr. Rogers, who conducted a profitable discussion on carding subjects; and in the afternoon, Mr. Hames led an interesting discussion on spinning. These discussions were based upon questions which had been assigned to different members of the organization in advance of the meeting, who made reports when called upon by the chairmen.

M. L. Brittain, president of Georgia Tech, welcomed the visitors to the school, following the invocation by Frank K. Petrea. General Chairman Dennis explained a number of things about the work of the organization; pointing out that chairmen had been assigned for the entire year, to handle each phase of the discussion work; explaining a difference in the method of collecting dues and the formation of local groups in the larger mill centers; and discussing the new plan of assigning questions, expressing the opinion that this makes for more definite and accurate information than does the practice of not preparing anyone for the discussion of any of the subjects. He urged the members to offer any suggestions as to the operation of the organization. He referred to the formation of the Alabama-Louisiana-Mississippi Division of the Southern Textile Association, and expressed their invitation to the Georgia men to meet with them.

Moisture Content in Cotton.

Mr. Rogers, in beginning the carding discussion, took up first the question of the moisture content of new cotton, based on the following question, "What is the average moisture content of your freshly-opened cotton, and how does this vary? What are the extremes you have found in various lots?" In explaining this question, he said, "I think it was two or three years ago, in passing through the picker room, I sampled a bale of cotton that felt very damp, and I invited Mr. Honicker, who is in our experimental department, to have moisture tests made of that cotton. In this particular case, he found 24 per cent, and we had several bales running in that neighborhood. That prompted me then to see what the experiences of other people were in that particular line, and although their tests were probably not begun then, I am sure there are several men here who have run sufficient tests to be of interest to us all." He first called upon B. G. Stumberg, superintendent, Anchor Duck Mills, Rome, Ga., to whom this question had been assigned.

"We made several tests for moisture content, taking it in ten-bale lots," responded Mr. Stumberg, "and found that our cotton contains an average of 7¼ per cent. But this question reminds me of some trouble we had at Tallassee, Ala., two years ago, when the weather was extremely wet. We had trouble in the spinning room with the weights, they would jump up and down, and finally we got to looking at the moisture in the cotton, and made some tests on it and found that the percentage of moisture was as high in some cases as 20 per cent, and averaged around 12 per cent,

Frank S. Dennis, General Chairman.

during the ginning season—in September, October, and November."

"What kind of cotton?" asked Mr. Rogers.

"Alabama, 15/16-inch," replied Mr. Stumberg. "Now, the old cotton averaged around 7 and 7½ per cent, but we made tests all during that time, and our percentage in the new cotton averaged about 12 per cent, running sometimes as high as 20 per cent. Then we made some tests at morning and at night, and at different times of the day. Our opening room was open, the draft going right on through the openers. We laid 80 bales down in the evening, to be used the next day, and the next morning the moisture content at starting time was at least two per cent higher than the evening before."

"Did you have any steam coils?" asked the chairman.

"None, whatever," replied Mr. Stumberg, "just normal conditions. We found, as I said, a normal moisture content of 7¼ per cent, and we find that it depends on the atmospheric conditions; in rainy weather it will have more and in extreme dry weather it goes below seven per cent."

"Have you run any test in the mill, the card sliver, for example, from any of that cotton?" asked Mr. Rogers.

"No, sir," replied Mr. Stumberg, adding that he found the laps varied one per cent in moisture content.

"In your finisher laps from the wet cotton, did the cotton dry out much?" inquired the chairman. Mr. Stumberg replied that the content was some higher; that he did not get very much of the moisture out of the cotton in the picker room.

"Then, that should affect you all the way through the mill," declared Mr. Rogers. "It did," said Mr. Stumberg, "and that is how we happened to look into the question of moisture in cotton."

George S. Elliott, assistant superintendent, Pacolet Mfg. Co., New Holland, Ga., asked if Mr. Stumberg could tell the moisture content of the yarn made from the wet cotton. The reply was in the negative, as Mr. Stumberg said he had not tested the yarn in this connection.

Frank B. Williams, superintendent, Fairfax Mill, West Point (Ga.) Mfg. Company, who was next called upon, said they had recently tested forty bales of 15/16-inch Middling cotton, and had found the average content to be 8.44 per cent. "But we have found bales from a new crop that ran as high as 15 per cent," added Mr. Williams.

"Did you run that right on through?" asked Mr. Rogers.

"Yes, but we did not test it any further at that time," replied Mr. Williams.

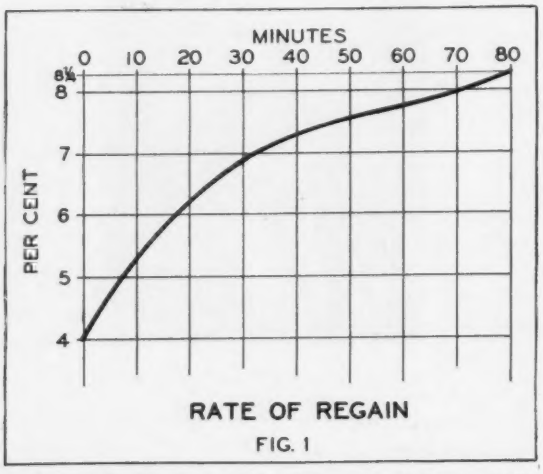


FIG. 1

Charles D. Honiker, of the Fulton Bag & Cotton Mills, Atlanta, next discussed the matter of moisture content in a very interesting way, and referred to two charts he had placed on the blackboard in the meeting room, which are reproduced with this report. Mr. Honiker said they had made many tests on this question at Fulton Bag, and in order to show the importance of the question, pointed out that, "The French Society of Spinners before the War organized a laboratory to make tests of the amount of moisture in cotton as received at the French ports. They found a very large amount of moisture in cotton beginning early in the season and getting less and less as the season progressed. That work was interrupted by the War, but it has been started again. Their purpose is to determine a reasonable amount of moisture in cotton as received in the bale, and to pay for the cotton on a moisture-content basis. They have adopted a standard of 8½ per cent, and they want to have cotton sampled and the definite weight determined with the net weight of the dry fiber based on the deduction for moisture, making allowances for cotton drier than that and placing a penalty for excessive moisture. The figures they have developed indicate that as the season progresses there is a loss of moisture which is very noticeable. The seasons change from year to year, and it has been definitely proved that the weather prevailing during the ginning season is very largely responsible for the moisture content. That has been proven so definitely that there is no use to go any further back.

"When cotton is received at the ordinary or usual mill, if it is local cotton and picked and ginned during fair weather, the amount of moisture will not be large, but if the season is as it was in 1926, where there was a very low price, and considerable cotton was left in the field until December, and January and February, a great deal was gathered while there was snow on the ground, after the price had improved, and after methods of extraordinary cleaning had been adopted, the cotton was picked and saved; in fact there was a great deal of it ginned as late as March.

"That cotton had a very large percentage of moisture in it, and it is a notable conclusion that, considering that 18-million bale crop, if it had been reduced to the basis of dry fiber, it might have been one million bales less than the statistics showed, owing to the extra amount of trash and water in it. That is a figure that possibly was not given any consideration in the statistics, but it may have had a very large bearing on where that big crop has gone to.

"We have tests going back to 1923, and we find considerable variation, even in cotton coming from the same point and received in the same lot. We have had some showing as low as 5¼ per cent and some from the same point that was much higher, as high as 9½ per cent; this cotton was probably ginned on a wet day. We have had quite a lot that would show up as high as 16 and 17 per cent, and some of course that you could tell by feeling."

Referring now to the sketch which appears in Fig. 2, Mr. Honiker discussed the length of time required for cotton to take up moisture. He pointed out that the solid line in this chart represented the outside air humidity, and the dotted line the moisture in the lap, calling attention to how closely the moisture in the lap follows the outside conditions. "The dotted line," he said, "shows that the regain in the lap varies from 8½ per cent down to six per cent, and the outside air from ten down to six per cent, and you can see that from the third to the fourth day, there was a difference of 3½ per cent in the regain condition of the air, and that this followed, almost in a parallel, by the amount of moisture in the lap. The conclusion that I drew from that is that you cannot expect to have regular and even numbers in the subsequent processes unless you have a more uniform condition of moisture in your cotton lap.

"It may be a long time away," declared Mr. Honiker, "but ultimately, I believe, cotton will be bought with some specification given as to the moisture content."

Referring to the other chart, which is shown in Fig. 1, Mr. Honicker said that "this represents the regain from a condition where we did not dry the samples out because that affects their ability to absorb moisture." The room, he said, was a test laboratory set for 8¼ per cent regain, and the cotton was introduced in loose form. In less than ten minutes after it was exposed to this condition, he pointed out, the cotton had gained one per cent, also calling attention to the fact that for the first thirty minutes there was a very rapid rate of regain, and that after that it got slower and slower, until, at the end of an hour and a half, it had gotten up to eight per cent, adding that it

took it about another hour to take on the final ¼ per cent.

Referring back to his statement regarding the French experiments, Mr. Honiker said he believed that the sea transportation could have a great deal of effect upon the moisture content. "I have been told," observed Mr. Rogers, "that the eastern shippers, by bringing their cotton to the East by water, gain enough to pay the transportation."

The chairman here brought out that one mill in Georgia had installed a method of dehydrating cotton before cleaning it, but no one from this plant was present to discuss it.

W. J. Holden, agent, Meritas Mills, Columbus, Ga., referred to the discussion concerning the rate of regain or absorption of cotton, and asked on the other hand, how long it takes cotton to lose moisture under average conditions. Mr. Rogers and Mr. Honiker explained that this depends upon the degree of heat to which the cotton is subjected. Mr. Honiker said they had made no tests along this line except in a drying oven; that different conditions in different situations, such as cotton lying on wet ground and then in loose form in the picking process, would have a bearing on the rate at which it would lose moisture. Mr. Holden pointed out that the mill man is more interested in drying out wet cotton, or new crop cotton. Mr. Rogers asked him if in handling his new cotton he ran it all out of the same shipment, and Mr. Holden replied that "we try to break the shipments up. We used to hold it and let it dry for a week."

"Do you gradually work in your new cotton?" asked the chairman.

"During some seasons we do, when it appears to be rather damp; and other seasons we get it and put it all in," replied Mr. Holden. He pointed out that practically everyone had changed their methods within recent years, and Mr. Rogers added that "there has been more attention paid to picking and opening within the last few years than ever before."

Mr. Honiker added that the mills are paying also more attention to regain instead of humidity in the cotton.

"Has anybody had any experience with cotton that seems to have acquired a property for holding moisture and not throwing it off?" asked Frank S. Dennis. He said he had had this difficulty recently, and that even after trying to dry it out, the cotton seemed to have a deliquescent property. He stated that he put it in a room and closed the windows, while trying to dry it out. Mr. Rogers suggested that a better plan might be to leave the windows open in order to get a circulation of the air. Mr. Dennis replied that he had a pretty good circulation on account of the fans, but that the best he could do was not good enough; that he tried ageing it for 36 hours before putting it in the pickers, but that it would still retain the moisture, and that the laps from this cotton would not look as good as those from other staple. He suggested that this might be caused by the type of soil in which the cotton was grown giving it this property, referring to a discussion in a recent Southern Textile Association meeting at which this same point was brought up.

Hibbard S. Busby, director, A. French Textile School, Georgia Tech, mentioned that the American Thermal Society recommends a complete air change in 2½ minutes, and that a forced draft is necessary to accomplish this.

"You have that in any picker room I have ever seen," declared Mr. Rogers, and he and Mr. Honiker gave figures showing that in two of their picker rooms, they have an air change approximately every 1¼ minutes.

At this point Mr. Rogers changed the discussion somewhat, considering now the subject of sampling cotton before it goes into the mill. In this connection he outlined the method being used at his plant:

Sampling Cotton.

"On the day before the cotton is to be run, samples are drawn and carried to the cotton department, which compares these samples with their standards, and tries to secure what we want." He called upon A. E. Massey, general superintendent, Thomaston Cotton Mills, Thomaston, Ga., to explain his method.

"We have a regular cotton man who handles our cotton for us from a staple standpoint," he responded. "He tries to hold it inside of a 1/16th variation. Each mix is stapled before it goes into the opening room, and is graded according to our mixings."

"You run several different lengths, do you not?" asked Mr. Rogers.

"We have about three different varieties, running from ⅞-inch to 1⅛-inch," said Mr. Massey, "according to the specifications of our various products."

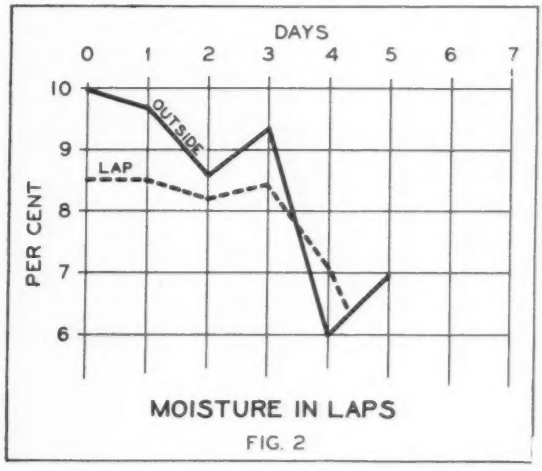


FIG. 2

"If you find some below the 1⅛-inch in that lot, what do you do?"

"That is classed as 1-inch and goes into the other batch," replied Mr. Massey to this question. "On our 1 1/16-inch stock we try to run that; anything below 1-inch is classed as ⅞-inch, and goes into that bin."

"Does your cotton buyer have charge of that?" asked Mr. Rogers.

"This man is with the cotton department, but he is not the buyer," explained Mr. Massey, "but still he does a great deal of it, he goes out and buys cotton on his ideas of what it is worth from the standpoint of staple, grade, etc. Our cotton is stapled in about three places: at the head office uptown, then by our cotton man, as well as each bale after it is opened. Our warehouse man goes through the bale from each side as well as the center, and staples it after it has been opened."

Mr. Rogers, stating that "we all have heard a lot about electricity on the cards," asked whether anybody had been troubled with static electricity on the pickers. L. J. Duckett, overseer of carding at one of the Fulton Bag mills,

told of an experience of this kind when the relative humidity happened to get as low as 17 per cent in Atlanta. There was no remedy in this particular case, said Mr. Rogers in answer to a question from Mr. Bowles, Mr. Duckett explaining that he would spray water behind the pickers and that in a few minutes the lap would be smooth again.

Humidity in the Picker Room.

The chairman next asked for experience and practice with reference to the use of humidity in picker rooms, or any methods of controlling the weight of laps in accordance with the relative humidity in the picker room.

C. K. Lawson, of the Goodyear Clearwater Mills, Cedartown, Ga., reported the use of humidifiers, automatically controlled, with which he said he endeavors to maintain a 50 per cent relative humidity.

"Can you do that?" asked Mr. Rogers. Mr. Lawson replied that when it is higher on the outside it can't be pulled down, but that it is an easy matter of course to bring it up from a lower level.

"We have atomizers over the pickers, and run them whenever we need them," declared Frank L. Asbury, Jr., superintendent, Hillside Cotton Mills, LaGrange, Ga. "We have found it very helpful, particularly on our colored work. It sprays right onto the lap."

"Do you have any trouble with wet spots?"

"On a real damp day we do not run them," said Mr. Asbury. "In dry, hot weather, on colored work particularly, we find it very helpful." He explained that the atomizers are operated by the knock-off mechanism on the picker. Mr. Rogers said he had used something similar at the Riverside & Dan River Cotton Mills, Danville, Va., and Mr. Asbury replied that it was at Danville that he got the idea for his method.

W. L. Phillips, superintendent, Social Circle Cotton Mills, Social Circle, Ga., reported that he has had automatically controlled humidity in the picker room since January 2nd, and that he likes it very much. He said he had been told that it was impossible to humidify a picker room, but that he had not found it difficult. He maintains a relative humidity of around 65 per cent, he said, explaining that of course this varies, and that at times it will go up to 80 per cent due to causes beyond his control. He said he could not clean his cotton at 80 per cent. "It has meant this to us: it has stopped us from changing card room gears, the crown gears on the speeders, for numbers. I don't believe we have changed a crown gear once in two weeks since we installed the humidifiers." He said he has five heads in a room 40x100 feet and that these do not run one-third of the time.

Mr. Rogers, referring to the statement of Mr. Phillips that he could not clean at 80 per cent, asked the difference between 65 and 80 per cent.

"At 80 per cent the grid bars choke up, and at 65 they do not do that," replied Mr. Phillips.

Asking for comparison between the unhumidified and the humidified room, Mr. Rogers asked if there was any difference in the amount of dirt, motes, etc., thrown out.

"We cannot tell any difference," replied Mr. Phillips. "I think our cotton is cleaned as well at 65 per cent as before we had the humidity."

"Any difference in the fly in after-processes?" asked the chairman. "Do you believe you break the fiber more under dry than under wet conditions?"

"I believe we do that," replied Mr. Phillips. "I believe when we have the moisture in the fibers when the beater hits the cotton it doesn't break them so much."

"Any difference in the fly around the carding and spinning?" inquired Mr. Rogers. "No, I can't tell any difference," replied Mr. Phillips.

Mr. Rogers explained that he had noticed several times in changing from a full-bodied cotton it made a difference in the amount of sweeps and fly; there was more from the shorter cotton. Mr. Phillips explained that he uses a full 1-inch to 1 1/16-inch local cotton, grown from seed distributed by the mill.

Mr. Dennis asked if there was a difference in the percentage of strips on the cards since starting the humidifiers in the picker room, and Mr. Phillips said, "I can't tell any difference."

"Is there any difference in the cleanliness of the yarn?" asked Mr. Honiker. Mr. Phillips replied that it does apparently contain a little more leaf.

Regulating Lap Weights According to Moisture.

At this point J. W. Hames, superintendent, Exposition Cotton Mills, Atlanta, explained a method he uses for regulating the weight of his laps in accordance with the amount of relative humidity prevailing in the picker room. He explained that he took the humidifier company's standard regain chart, and figured out for each change in the relative humidity, the amount of weight necessary to be added or taken from the lap to provide for the increased or decreased humidity. A hygrometer reading is taken every hour, near the finisher picker, and weight added or taken from the scale in accordance with the change in the humidity. "We take this reading once an hour," he said, "but we find that the relative humidity doesn't change a great deal in an hour's time, so we do not have a great variation from one hour to another." As to the results of this method, Mr. Hames said he reduced the amount of changing in the card room fully 75 per cent; he keeps his numbers on the drawing frame, and said it is very seldom that he has to change a gear on the drawing; and added that the section beams run a great deal more even, that the extreme variation in the yarn was reduced: "in other words, our average numbers run more uniform than ever before."

"We vary our laps in accordance with the humidity, and our heavy and light numbers do not seem to be so far away from the average as they were before," added Mr. Dennis.

The next subject taken up was that of methods of opening and cleaning cotton, and was based on the following question, which appeared in the questionnaire: "From your experience, what type of opening system have you found best for your conditions, considering the amount of waste, breaking strength, and running qualities of work? Give your experience with the relative merits of horizontal against vertical openers—waste percentages, running qualities of stock, breaking strength, etc."

New Methods of Opening Cotton.

In introducing this question, Mr. Rogers asked "Has anybody changed the opening equipment in the last few years?" answering it by adding, "I don't imagine many of us have failed to change." Speaking for Fulton Bag, he continued by saying that, "we have added eight or ten horizontal cleaners to our vertical cleaners, and in one case we took out a vertical cleaner and put in two horizontals. We find that when we added the two horizontal cleaners to our verticals that we took out just three times as much

dirt. These cleaners, by the way, are so arranged that an air draft passes through the screen and takes out a very great amount of dust, together with the dirt and motes." He asked Mr. Hames for his recent experience with cleaning equipment.

"We have had tandem feeders in addition to the Crighton openers," said Mr. Hames, "and we now have the Crightons in tandem and a lattice cleaner."

Mr. Rogers called attention to the fact that Mr. Hames has a fan on top of the lattice cleaner to eliminate dust, and asked, "how do you keep the cotton from going along with the dust?" Mr. Hames explained that this fan is just above the stripping drum that strips the cotton down off of the lifting apron, and the draft is far enough away so that the cotton will not be taken by the fan. Mr. Rogers asked for other experiences.

"We have a long apron and bale breaker, two lattice openers, and two horizontal machines, with a No. 7 fan connected to the room," said C. R. Brown, superintendent American Textile Co., Atco, Ga. "We get out more dust there than in the picker room."

"How can you take out much dust in a picker room?" asked Mr. Rogers.

"You can't," said Mr. Brown. "The air draft pulls the dust right back into the cotton; it removes it at one point and puts it in at another." In connection with his opening machinery, Mr. Brown explained how the horizontal machine takes out the dust and sends it to the dust room, adding that the mill "gave me the privilege of putting in anything I wanted, and I selected the horizontal machine." Mr. Rogers asked him the relative amount of dirt removed from the vertical and horizontal machines, and in answering, Mr. Brown explained that he had been so busy getting a new addition to his mill started that he had made no such tests, but stated that the horizontal machine "is the only place in the picker room where you can get any dust to amount to anything."

The chairman next called upon A. E. Massey, general superintendent, Thomaston Cotton Mills, who replied, "We do not have anything in the opening line except a bale breaker. Crighton opener and one horizontal cleaner, and do not get anything in the way of extraordinary results; but since we put in the horizontal cleaner we take out several percent more than we were getting just through the vertical cleaner. I really feel that the Martha mill has us beat on opening and cleaning." His vertical and horizontal cleaners, he said in replying to a question, are in tandem. Acting on his suggestion, the chairman called upon Mr. Wilson, overseer of carding at the Martha mill.

Mr. Wilson said they have a bale breaker, lattice opener, No. 12 double chamber Saco-Lowell porcupine beater machine, and a Centrif-Air horizontal, and "we get very good service. The vertical opener we do not consider very much except to take out dust. Where you have the horizontal also the vertical doesn't do you very much good. The lattice opener is only a mixer, and in my experience does not clean so much. I consider the No. 12 and the Centrif-Air the two greatest cleaners we have." Mr. Wilson ranged from this to a discussion of humidity, declaring that while it is a great thing, he does not believe that cotton can be cleaned with too much moisture in the picker room. He also added that while he puts down 35 bales to a mix, he does not believe that he gets, or does not figure on getting a mix of from more than three bales. This suggested the possibility of uneven weights, and it developed that he has eveners on his breaker drawing, and puts eight ends up at the back, and in this way has a pretty good control of his weights. Mr. Wilson expressed the opinion that all drawing should have eight or maybe ten ends up at the back for evenness. Mr. Rogers asked him the draft of his machine, and the replied, 6.25, on a 64-grain sliver, Mr. Rogers pointing out that "you get out a heavier sliver than you put in." On the second drawing, Mr. Wilson said he uses a draft of six.

Mr. Rogers asked whether under these conditions the extreme variation was less, and J. C. Edwards, superintendent, responded, "I have not been on the job long enough to say exactly, but our variation, on 23s/5/3, may seem a little extreme, our 500-pound beams will sometimes be 12 pounds off, but I do not think that is so bad; although I have run on prints with four and six pounds variation. But we are getting away from changing practically altogether in our spinning room, and very little in our card room." He explained that every delivery on drawing is sized, and the numbers kept from that. "We have a man who does nothing but that," he said.

Frank E. Heymer, superintendent, Eagle & Phenix Mills, Columbus, Ga., was the next man called upon for a report on this subject, and in his absence, his report was read by Frank B. Bradley, assistant superintendent. Mr. Heymer's report follows:

"In making a test of 20 weeks, using 759,810 pounds of cotton, we find that we obtained an average of .71 per cent motes and droppings from the Buckley beater; .78 per cent motes and droppings from the Crighton opener; .14 per cent motes and dirt from English cleaning trunk; .11 per cent waste from dust cellar; and .10 per cent sweeps, which included sand, leaf, and droppings, or a total of 1.84 per cent of waste.

"The machinery on this system of cleaning consisted of a bale breaker, 30-inch Buckley beater, Crighton opener with grid bears—which are in my opinion preferable to screens—five sections of English cleaning trunks. The cotton mix averaged Middling cotton before cleaning, and in our experience we find that we are saving this amount not only in dyeing, but we have cleaner cards, the work on the cards and subsequent processes is running considerably better, and is giving a cleaner looking yarn. Due to the fact that we have obtained better running work, naturally a better product was the result.

"It is my opinion that the vertical system is far better for preparing cotton for work in the mill than the horizontal system, as the cotton receives the essential airing in the Crighton, and thorough cleaning, preparing and opening.

"On account of the nature of the finished products, no record was made on this test as to breaking strength; however, on further tests and results obtained, we find that our work on the winders and warpers has made a wonderful improvement, which we attribute to the better strength of the yarn.

"On two further tests, we omitted the Buckley beater on one of the tests and carried these experiments as far as the cards, to see if it was necessary to have the Buckley beater in the lay-out. We found a considerable amount of motes were left for the pickers and cards to clean out.

The results of the two tests were:

TEST I.
(With Buckley Beater Included.)

Waste from Buckley Beater, Crighton opener, and English cleaning trunk	2.19 per cent
Visible picker waste	.73 per cent
Invisible picker waste	1.84 per cent
Cards	3.14 per cent
TOTAL	7.00 per cent

TEST II.
(Without Buckley Beater)

Waste from Crighton opener and English cleaning trunk	1.45 per cent
Visible picker waste	1.54 per cent
Invisible picker waste	1.87 per cent
Card waste	3.92 per cent
TOTAL	8.78 per cent

These last two tests have proven to us conclusively that the Buckley beater is a very essential requirement in a system of preparatory cleaning of cotton."

In response to a request from the chair, Mr. Bradley explained that their cleaning is done preliminary to re-baling and dyeing the raw stock.

"How many times did you strip during the test?", asked J. L. Bowles, overseer carding, Fairfax Mill. "There was no change in the operation of the regular work at all," replied Mr. Bradley, "and we strip three times a day."

"With the vacuum?", asked Mr. Rogers, and Mr. Bradley replied in the affirmative.

R. J. Jennings, of the Lanett Mill of the West Point Mfg. Co., was next called upon. "In our opening room," he said, "where we used to have a bale breaker, Crighton opener, lattice apron and horizontal cleaners, we have changed two lines and have a bale breaker, Crighton, No. 7 hopper feeder, Buckley cleaner, right on through the horizontal cleaner, and then 28 feet of English cleaning trunk. We find that the work run through the lines where we put in the additional machinery is opened up a whole lot better than with the old method, but so far as the cleaning is concerned, I do not believe there is much difference in the percentage of waste, but where the horizontal and vertical took out a good deal of waste before, now the waste is more evenly distributed through all of the machines. It is a little cleaner, and being opened up better we can clean it better all the way through. The total percentage of waste will run about one per cent more than on the old method, but it is more evenly distributed through the machines. We find we do not lose as many laps, and the work runs more even."

"In the after processes?" inquired Mr. Rogers.

"Well, yes," responded Mr. Jennings.

Mr. Rogers here called attention to the fact that "there has recently been introduced a single picking process, all contained in one machine; has anybody got that?"

Mr. Bradley of Eagle & Phenix replied that they have installed a double breaker with a Buckley beater, and have eliminated the intermediate process, although they use the finishers still.

"How does the evenness compare with the former laps?", asked Mr. Rogers.

"We think we have a wonderful improvement, both in evenness per yard and in uniform weight of the breaker laps," replied Mr. Bradley.

"How about the percentage of waste?", was asked.

"We get a little more cleaning from this breaker than from the old breaker and intermediate," responded Mr. Bradley. "This Buckley section is a wonderful thing. It has the upstroke beater with grid bars. We get more cleaning with it than we did on our breakers and intermediates in the old process."

"How is the breaking strength?", asked W. R. Holt, assistant superintendent, Muscogee Mfg. Co., Columbus, Ga. Mr. Bradley said he did not have figures of tests on this point.

Here the question of setting laps back came up, and W. L. Phillips, by declaring that he does not set laps back, caused considerable interest among those present. He said he does not believe that a variation in the total weight of the laps of more than the usual limitations will have any effect, provided the yard for yard weight is correct, or that running the laps over again will correct this variation. He said, however, if every third lap weighs off his man sets it up. Mr. Wilson, of the Martha mill, declared he does not set any laps back, allowing 1½ pound variation, but that he does not put them on through. He has the evener drawing, as he explained, and marks card sliver from light laps yellow and that from heavy laps gray, and runs these in alternate strands back of his breaker drawing, and compensates for the variation in this way.

Discussion on Continuous Card Cleaner.

Chairman Rogers brought up at this time the subject of "a new continuous card stripper", explaining that Otto Latsch, manager, Southern Mills Corp., Oxford, Ala., had been requested to explain his experience with this attachment. This is known, he said, as the Belger device. In explaining it, Mr. Latsch said that, "you may think of it as a stripper, but it really is not, because it does not take out any strips. Its object is to keep the cylinder continuously clean and not let it load up. It is approximately something like a two-blade beater. On each side are two groups of needles, with an open space between, and it travels across the card, something like a grinder. It is driven by gears and pulleys from the cylinder, at a higher surface speed than that of the cylinder. The angle of the needles is opposite to that of the cylinder wire, therefore when it touches into the cylinder it raises the cotton up out of the cylinder. Its location is important: it is placed behind on the back end of the card between the licker-in and flats. The short stock, leaf, etc., is taken out by the flats, and the good cotton goes on through to the doffer. We have had several of these running for sixteen months, and we have not touched a one, and we have not stripped the cards, except on the doffer. We have less waste on the card, and we do not stop for stripping, of course." Mr. Latsch then read figures from a comparative test of 3¾ hours duration. The test on the new system card was made after the expiration of three stripping periods; on the standard card after stripping the cylinder and the doffer.

Under the old system, he said, the standard weight of lap was 45¾ pounds; under the new way, 46½ pounds. He lost from the former, in the net weight of sliver, 4¾ pounds or .1037 per cent; and with the new system, 3¾ pounds of .086 per cent. The cylinder and doffer strips, under the old system, were 7¼ ounces; on the new, 2¾ ounces. Flat strips, on the standard card, 31 ounces; on the new way, 25 ounces. The licker-in, cylinder and doffer fly, on the standard card, was 33 ounces; on the new, 28 ounces. The invisible loss on the old card was 4¾ ounces; on the new, 4¼ ounces.

"That is a difference in waste regain," Mr. Latsch explained, "of 22.11 per cent. The sliver on the new way of carding runs very uniform. The sliver weight on the new system, average of six tests, was 93.7 grains. On the old way, ten minutes after stripping, the weight was 84 grains; between stripping periods, 89 grains; and ten minutes before stripping, 91 grains." (The sliver weight originally made, from a 14½-ounce lap, was 85-grain.) "We do get a very even sliver, less variation, and less loss in waste."

"Any more short fibers in the sliver?", asked Mr. Dennis.

"Naturally, there will be," answered Mr. Latsch.

"How about the breaking strength?", asked Mr. Rogers.

"There is less variation in the breaking strength," declared Mr. Latsch, adding that he does not believe it is increased materially.

Mr. Hampton wanted to know about the percentage of spinning room sweeps. Mr. Latsch explained that he is on very coarse numbers, but that there appeared to be less fly; "it gives better carding because your cylinder is clean," he added. "We work very low grade stock, and on the regular card, just before stripping—we strip three times a day—the web looks cloudy. I think there is less variation and less fly."

"Where do you figure this trash goes when you use this attachment?", asked Mr. Bowles.

"It goes into the flat strips," replied Mr. Latsch. "They are a good deal more specky."

Mr. Bone, overseer of carding at Lanett, asked if he had any trouble with the wire on the cleaner getting dull, and Mr. Latsch replied, "Not so much as on the fancy attachment. We are running it twice as long as we run the fancy. On the fancy our fillet dulls very fast and the card clothing fills up with foreign matter, and I do not believe the clothing will last two years." He added that he does not grind the cylinder any more frequently since using the cleaner, running twice as long without grinding. He said he runs strips and low-grade cotton.

The question of how deep the teeth of the cleaner should be set into the teeth of the cylinder came up, and Mr. Latsch explained that this depends upon the stock being run. Mr. Bone said he sets his in about 1/16-inch; Mr. Latsch said he sets his just deep enough to raise the cotton, probably 1/32-inch. A. C. Boyd, assistant superintendent of the Langdale mill, brought out that there are two different oscillating motions, one with a stroke longer than the other, and Mr. Latsch said in his opinion the longer stroke is better. It was suggested that this might have some bearing upon the dulling problem suggested by Mr. Bone.

G. S. Jones, overseer carding, Sibley Mfg. Co., Augusta, Ga., asked Mr. Latsch, "What becomes of the motes?", and Mr. Latsch explained that the cleaner does not remove them. "Well, doesn't this work a double duty on the flats?", inquired Mr. Jones. Mr. Latsch replied that he has had no trouble at all on this point; that the clothing is just as good as it was sixteen months ago. Mr. Bone brought out that the cloth should be a little more specky.

While on this general subject of cleaning attachments, Mr. Rogers asked for discussion of fancy attachments and duplex devices on cards. George W. Baxter, overseer, Goodyear Clearwater Mills, Cedartown, Ga., replied they use seven or eight duplex devices, but cannot tell any difference in the total cleaning of the card. Mr. Holt said he had had experience with the duplex or fancy a number of years ago, and that it would take out about double, which would of course give more shrinkage in the amount of material.

New Vacuum Stripper.

Mr. Rogers next brought up the subject of a new vacuum stripper with larger pipe, which he said he understood was designed to eliminate "nigger kinks" in strips, giving them a higher value. C. R. Brown, of Atco, and Clyde Eldridge, superintendent, Aldora Mills, Barnesville, discussed this. Mr. Brown said he is installing it on 200 cards; that the erector had left his mill only the previous day, and that he had no information based on experience with it. He replied to a question from Mr. Hames by stating that it is a complete change-over job, and it is necessary to change the receiver, piping, etc. Mr. Eldridge said he has the new Cook-Goldsmith system, with the eight-inch pipe, and that he strips three times a day. His is a converted system, and in response to Mr. Rogers, he said he cleans out from underneath the cards and pickers with it also, and that it also has an arrangement for cleaning walls, etc. Mr. Rogers inquired whether an appreciable increase in speed was possible, and Mr. Eldridge replied that he did not think so.

Straight Tooth Wire on Doffer.

The chairman called attention here to a new wire for card doffers, which, he explained, is straight, without a knee in it, and is designed to eliminate stripping of the doffer. Mr. Bone, of Lanett, said he has it on experiment, and that he gets very good results from it. He strips once a day, he said, and does not have any trouble with the wire getting dull. "We get a better grade of sliver," he said, "it is not as dirty, and the work is cleaner." His doffer speed is 10 r.p.m., he said.

"Do you clean the cylinder less often?", inquired Mr. Rogers.

"Yes," replied Mr. Bone, "once against three times a day formerly." Mr. Rogers said he couldn't understand why this could affect the cleanliness of the cylinder.

"Any trouble in keeping the wire sharp?", asked George S. Elliott.

"Just about the same as on the other," replied Mr. Bone.

"As I understand it, the wire is straight on the end, without a knee in it," said Mr. Rogers. Mr. Bone explained that there is just a little angle on the end of the wire, and Mr. Rogers wanted to know how it was possible to grind for an angle on the end. Mr. Bone, and Guy L. Melchor, southern agent of Howard Brothers Mfg. Co., who was called upon, explained that the wire is straight, but that it is set into the foundation on an angle, and with the end beveled, a straight surface actually is presented to the grinding roll. Mr. Melchor added that this wire does not require as heavy a grinding as the regular type. Mr. Rogers asked whether a slow or fast grinding speed is better, and Mr. Melchor replied that "I imagine a high speed would be all right."

Sizes of Drawing Frame Trumpets.

The chairman next passed on to the next subject in the questionnaire, which was, "What effect on evenness results from varying sizes of trumpets on cards and drawing frames?"

George S. Elliott, reporting the test of D. W. Anderson, manager of Pacolet Mfg. Co., New Holland, Ga., said that, "We did not have the equipment to go into this very deeply, but I will give you what we did. We have two sizes of trumpets, 7/64-inch and 9/64-inch. Through the 7/64-inch trumpet we ran a 43-grain sliver and spun a 21s yarn and got a breaking strength of 68 pounds. Then we ran the same size sliver through the 9/64-inch trumpet and got 72 pounds, or six per cent stronger break. Then, through the 9/64-inch we ran a 64-grain sliver, making 11½ yarn, and got 149 pounds break, and then ran this same sliver through the 7/64-inch trumpet, and got a breaking strength of 139 pounds, or a loss of 7.2 per cent. In other words, the 9/64-inch trumpet gave an average increase in breaking strength, over the 7/64-inch, of 6.5 per cent." Answering questions, he said the same size trumpets was used in both back and front drawing in both cases. He then wanted to know whether there is any standard sizes of trumpets for the different weights of slivers.

Responding to this, Mr. Dennis said that he understood the manufacturers based the sizes on "wire gauge sizes". He said he changed the size of his trumpets in going from coarse to fine work, and ordered the new trumpets by the "wire gauge size".

Mr. Rogers asked R. O. Wilson, overseer of carding, Pacolet Mfg. Co., New Holland, for further details in connection with the test reported by Mr. Elliott, In answering, Mr. Wilson said he found he had a difference in tension between the two sizes of trumpets. "When we put the 64-grain sliver back through the 7/64-inch, there was a looser tension, and also just the reverse in putting the 43-grain sliver through the 9/64-inch; it seemed to pull tighter from the bite of the trumpet to the front roll, so we had a change in tension as well as in breaking strength."

G. S. Jones asked about the make of the frame, and Mr. Elliott said it was a Saco-Pettee, with a short nose trumpet.

In connection with this discussion, Mr. Bradley of Eagle & Phenix offered a rule which he said had been found satisfactory in finding the proper size of trumpet for different slivers. The rule he uses is: "on the first process of drawing, to find the diameter of the hole, multiply the square root of the weight of the sliver in grains by 1.1; this will give the diameter of the hole in 64-inches. For example, with a 65-grain sliver the diameter would figure out 8.86/64-inch, or 9/64th, which is what that gentleman there found to be satisfactory. On the second process of drawing, multiply the square root of the weight of the roving in grains by 1.00; and if you should happen to have a third process of drawing, multiply it by .9."

Mr. Rogers announced here that the Latsch system of testing roving for evenness was on display in one of the building corridors, and would be demonstrated for those interested.

The next question on the list was, "At what depth should the flutes on metallic rolls on drawing frames be run? How do you determine whether these are set too deep or not deep enough? Give effects and remedies for running too deep and not deep enough."

The chairman first read excerpts from a letter from O. E. Nutter, of the Saco-Lowell Shops, and then presented the report of Walter B. Dillard, Jr., assistant superintendent, Columbus Mfg. Co., Columbus, Ga. Mr. Dillard's report was based on Saco-Pettee drawing frames, 1912 model, and read as follows:

"A review of the textbooks covering this subject reveals, flutes on metallic rolls are set by the manufacturer at the shops and are not to be changed by the mills. The front rolls are set 3/64-inch deep and the two back rolls are set 4/64-inch. The collar determines the depth of the flute settings. Metallic rolls are positively driven like gears, and the crushing of the fiber is prevented by having the teeth not mesh too deeply. By building up on the collar of the four top rolls we were able to separate the rolls, thereby decreasing the depth of the flute settings, with this setting the sliver or stock was rushed, pulled or drafted through so quickly and in such lumps that it did not pass through the trumpets. We then cut down on the collars, which made the flutes mesh so deeply that the stock was cut, noticeably to the eye, so that it would not run on the slubber. Our summary is to leave the manufacturer's settings alone."

There was little discussion on this point. Mr. Bradley wanted to know how much would be a reasonable variation in the diameter of the collars of the metallic rolls, consistent with good running work. He said he had recently checked over twelve heads and found a maximum variation in diameter of 10/1000th-inch, and wanted to know if this was too much.

Mr. Rogers pointed out that these rolls are case-hardened, explaining that the case-hardening is not applied to the entire length of the collar, but simply a strip of about 1/4-inch, and expressed the opinion that they could not work closer than 10/1000th-inch, if case-hardened.

"Another thing we did was on one frame that seemed to be crimping the web—we were having trouble with strength, and from the way this frame was jumping we thought it might be causing it," said Mr. Dennis. "We ran a breaking strength test and found that there was no difference in the break on the yarn from this old frame, and we decided to let it alone."

G. S. Jones wanted to know if anybody had any experience with sending steel drawing rolls away for repairs. Hal Riviere, superintendent, Griffin Mfg. Co., Griffin, Ga., said they sent twenty sets for repair, to the Southern Spindle & Flyer Company, where the collars were renewed and the rolls refluted, and that he found they were very satisfactory. He added that these rolls were from an old style frame, and that what really took place was that they were made into new ones.

"Did you have to change the draft", asked Mr. Jones.

"Yes, as much as three teeth in one case," said Mr. Riviere. Mr. Jones said he had had some rolls worked over and when he got them back he noticed about two teeth difference in the draft, "and also it had an effect on my tension."

"Did it decrease or increase the tension?", asked Mr. Rogers.

"It made it tighter," answered Mr. Jones.

B. G. Stumberg was asked to discuss this, and pointed out that one difficulty with drawing rolls is when the rolls are taken out sometimes they are not put back into the same places, and baggy webs result, due to the rolls not fitting; if they are too deep, he said, there will be too much weight on them and they will draft more. The working depth of the rolls, he added, depends upon the weight of sliver; sometimes the actual depth is not the working depth.

Mr. Rogers asked whether, as a matter of fact, the collars of the rolls are not together all of the time, asking Mr. Stumberg whether he tried to maintain this condition, and Mr. Stumberg answered, "Yes, or you will not have a uniform tension." He added that at Anchor Duck prior to his going there, they had had an experience where they had to increase the weight on the rolls in order to get a uniform tension on the back rolls.

"You can take a 40-grain sliver and the collars may be together," said G. S. Jones, "but you put a 60-grain sliver in there and the collars will not be together with the same weight on them; would it be advisable to increase the weight to put the collars together?"

Mr. Bradley told of the following experience: he said they had H. & B. and Saco-Lowell drawing, where the weighting from back to front was just the opposite to each other, and he found by changing one frame so that both started with the heaviest weight on the back and graduated down to the lightest weight on the front rolls, gave the best results.

"When I went to Sibley," Mr. Jones said, "we had both H. & B. and Saco-Lowell, and the weighting was opposite. I went to work and put the heaviest weight on the back on both, starting with an 18-pound weight, and improved the running." Mr. Rogers said he had a similar experience, not increasing the weights, but changing them beginning with the heaviest weights on the back roll, and the conditions improved.

"I also noticed with the lighter weight on the back, the rolls were bouncing considerably more, because, I figured, the sliver was the heaviest when it started it, and after putting the heavy weight on the back I had considerably less bouncing, and more even running."

Cork Rolls in the Card Room.

At this point the chairman announced that he would like to have a discussion on the use of cork rolls in the card room. He explained that the subject of cork rolls in spinning would be taken up at the afternoon session, but that he wanted to get some experiences of those present who have used them instead of leather on fly frames.

The first man to respond was Frank L. Asbury, Jr., Hillside Cotton Mills, LaGrange, Ga., who said that about 2½ years ago he began to play around with a seamless cot cork roll in the card room, putting these rolls on one intermediate frame, and that now he has eighteen intermediates, speeders and slubbers equipped.

"Any difference in the weights on the slubber?", asked the chairman.

Mr. Asbury said there was no difference, adding that, "we do not know of any such thing as hard ends now." The cork cots were applied by turning down his original rollers, he said.

Mr. Rogers said he had experimented with the cork rolls somewhat, and had found that the work was lightened to an extent when the rolls were new, attributing this to the probability of a greater draft because the rolls were new.

R. J. Jennings, of Lanett Mill, next reported. He said they had been running cork cots on all three top rolls (shell front roll and solid middle and back rolls) on speeders for about 2½ years, and that they have not had any rolls re-buffed or taken out of the frame. "We are going to put in cork rolls on six or eight more speeders," he said, "and if it works out as well as it did on the first installation, I think we will gradually go on through." He added that they do not have any trouble with hard ends, and his overseer of carding, Mr. Bone, said they had had only two bad rolls show up in 2½ years. "I think you can re-buff them two or three times before they are gone," said Mr. Jennings. He said he has run tests on breaking strength, and cannot tell any difference in the break between the yarn from the cork and that from leather rolls; and that the roving and yarn has about the same variation.

Mr. Asbury said his first frame, which was equipped in July 1926, and has been running day and night since, was equipped with cork on the front line of rolls only, and that he has not taken out over 12 rolls.

In connection with this discussion, Mr. Hames asked if anyone had figures on the life of leather rolls. Mr. Rogers offered an experience in which he ran cork rolls on a certain stock for about a year; while on this work he had changed leather rolls about every two weeks.

This concluded the morning session, and at 1:00 o'clock the members were served a substantial luncheon in the mess hall of the college. At the luncheon, W. R. Holt, assistant superintendent, Muscogee Mfg. Co., Columbus, Ga., was elected as a member of the executive committee to succeed Frank L. Asbury, Jr., whose term expired. Mr. Holt will serve for 2½ years.

J. W. Hames, Vice General Chairman, Who Led Spinning Discussion.

Afternoon Discussion on Spinning.

At 2:00 o'clock the discussion was resumed, the spinning room being taken up. J. W. Hames, superintendent, Exposition Cotton Mills, Atlanta, Ga., led this discussion in an able manner, and the quality of information developed during the morning session was evident also in the afternoon.

The first question taken up was with reference to end breakage on spinning, consisting of reports of tests on the number of breaks per hundred spindles per hour. Much valuable information was presented, particularly with reference to the causes of the breakages, but at the end of the discussion, it was decided not to publish the figures reported on this question, since because of differing conditions and numbers and methods of making the tests, they were not all comparable; and it was felt better to wait until a standard test method could be adopted, from which the results could be reduced to a comparable basis, before reproducing the figures.

Cork Rolls in the Spinning Room.

The subject of cork rolls in the spinning room was next introduced by Chairman Hames, who called upon several men to whom he had assigned the following question: "Give experience with cork rolls in the card room and spinning? Do you use the seamless cot or some other type?"

George S. Elliott, of the Pacolet Mfg. Co., was called upon, and while he was putting some figures on the blackboard, others continued the discussion.

"We are running one frame on cork-covered rolls," said J. S. Ellis, overseer of spinning, Thomaston Cotton Mills, Thomaston, Ga. "We have a full set, on the back, middle and front. We cannot tell any material difference in the running of that frame compared with the rest. We have found no difference in our break; if anything our break shows slightly less on the cork than on the leather. Another thing about the cork: we find our spinners never have any clearer boards to pick, the cork keeps the clearer board clean at all times. I do not say that it puts all of the clearer waste into the product, but it does put a portion; I have watched it and can see it going down into the work. It doesn't put all of it, because some of it drops between the rolls and onto the frame."

"Couldn't you put all leather rolls in new and increase your breaking strength?" Mr. Hampton, of Fairfax, wanted to know. Lots of mills, he said, do not change their back and middle rolls often enough, and "I want to say that you need a mighty good roll in the middle and should have a pretty good roll in the back. They should be changed more than they are. I believe a lot of people run good running work by not looking after them. If we would look after our middle roll and back roll more carefully we would have much evener work and lots better running work." He added that to take a roll that has been run 18 months and examine it will show up how much it has been grooved; he was speaking of leather rolls.

"We have been running the cork roll for six months and there are no grooves in it," said Mr. Ellis.

Report from Stark Mills.

H. H. Ocheltree, superintendent, Stark Mills, Hogansville, Ga., was the next man to report. He said that close onto three years ago they put some cork rolls in, and that during this time he has made a pretty extensive study, comparing the cork with the leather under similar conditions, and being unprejudiced concerning both.

"We put in the seamless cot cork, and compared it with sheepskin leather rolls," he said. "New rolls were put in at the same place at the same time. Studies were taken with the top roll only cork covered, and then we went to all three top rolls covered with cork.

"It was found that there was no appreciable difference in the end breakage. One difference noticed was the unknown causes of end breakage; they were less on the cork than on the leather. This might be classed as an advantage of the cork roll. A study of evenness and breaking strength showed no advantage for either roll. The advantages for the cork are that they are more economical, more resilient, less troublesome for the section man, and more economical in cost. The property of having more resiliency is a great advantage and is a decided factor in the economy of the roll.

"The fact that cork rolls can be re-buffed at a slight cost will cause less trouble; and there are fewer rolls to replace, since the average life is longer than leather-covered rolls. I have cork rolls in the frames that have been running nearly three years, and never have been taken out of the frame, and as far as I could see in the testing of the yarn, there was no difference in the break, or the evenness in weight. That reduces the replacement cost. This saves a great deal in shipping and crating where the rolls are covered by an outside shop. We also have less rolls in stock. And the so-called 'eye-brows' on leather rolls are not apparent on new or old cork rolls. The surface of the roll is rough enough to carry the waste up into the clearer boards."

Mr. Ocheltree continued by saying that he is using the cork rolls along with the multiple system of spinning: he is running 20 sides to the spinner on 23s, with a front roll speed of 132 r.p.m., furnishing cleaners for the frames. He added that hard ends do not give any trouble on the cork-covered rolls; stating also that while a test had showed the end breakage higher on the cork rolls, he had found this due in the particular case to having left the frame standing over the week-end with the weights on the rolls. He then read an end breakage report, covering the breaks per 1,000 spindles per hour, on 1,056 spindles of each, on 23s yarn, out of 1 1/16-inch cotton, with a spinning room relative humidity of 48.1 per cent. He gave the causes of the breaks as follows:

Cause	Leather.	Cork.
Bunches in Roving	.758	1.441
Roving Breaking Back	.758	1.41
Hard Ends	.379	.947
Ends Down Caused by Hard Ends..	.284	1.704

This gave an end breakage percentage on the leather rolls of 17.233 per cent, against a percentage on the cork of 17.897. This information concluded his report on the subject.

"What is the average life of leather rolls that have been in use, based on replacement per sixty-hour week?", asked General Chairman Dennis. "Our average life is around 24 months based on a sixty hour week, total number of rolls in service and total number replaced."

While not able to give the figure as desired, R. M. Matthews, superintendent, Peerless Cotton Mills, Thomaston, Ga., replied that his tests show an average of .93 roll per frame per day.

Elliott's Report from Pacolet.

Mr. Elliott had finished putting his tabulation on the board, and at this time discussed it. As a matter of information, his figures are reproduced herewith. He made a comparative test on average number, percentage variation in number, average break and variation in break, between the cork and leather-covered rolls, taking these tests after two weeks, eight weeks, 12 weeks, 18 weeks, 27 weeks, and 40 weeks time. His figures follow:

Weeks Run	CORK ROLLS				LEATHER ROLLS			
	Average Number	Var. in No.	Avg. Break	Var. in Break	Average Number	Var. in No.	Avg. Break	Var. in Break
2	20.54s	1.67	80	15 lbs.	20.36s	1.08	77	16 lbs.
8	20.83s	1.51	83	17 lbs.	20.17s	2.14	85	21 lbs.
12	20.47s	1.36	77½	18 lbs.	20.47s	2.05	76	15 lbs.
18	20.89s	3.39	74⅓	18 lbs.	20.01s	3.26	76⅓	15 lbs.
27	20.17s	2.80	76	18 lbs.	19.86s	2.34	79⅓	16 lbs.
40	20.76s	2.22	73	22 lbs.	21.22s	2.59	72	17 lbs.
			Average.					
	20.61s	2.16	77⅓	16 lbs.	20.35s	2.24	77⅔	16⅔ lbs.

Now, commenting upon this report and his experience, Mr. Elliott said that "we put in cork rolls two years ago and started to work with them. When we first put them in we put them on osnaburgs, using a 9s waste yarn. We ran them for six or seven months before we really became interested, and then we decided to go into it in detail, and to get comparative figures we put them on frames in which we run 20.50s warp yarn. We took averages after two weeks, and as you see, the cork showed a number of 20.54s, with a variation in number of 1.67, a break of 80, and a variation in break of 15 pounds from highest to lowest; while the leather showed 20.36s, with 1.08 variation in number, a break of 79 pounds, with 16 pounds variation from high to low. You can also make the comparison after eight weeks, and so on down.

"When we got down to 40 weeks (and I might say there had been 13 replacements made) we took the average for the whole period, and found that the cork averaged 20.61s against 20.35s for the leather. The cork variation in number was 2.16, break 77.3 pounds, and a variation of 16 pounds in break; the leather showed 2.24 variation in number, 77 2/3 pounds break, and a variation of 16 2/3 pounds in the number."

As a matter of information, Mr. Elliott said, he compared the cost based on 66,000 spindles and last year's usage of leather rolls, which was 107,200 rolls, at six cents a roll, would be $6,432. The cork covered rolls cost 3¼ cents per inch in length, he said; adding to this .015 cents for assembling (putting cots on). The manufacturers estimate a cost of ½ cent a roll for buffing, and figuring four buffings a year to the roll would add .02 cents to this cost, making a total cost per cork roll of .1325 cents. Assuming the use of 33,000 rolls per year, Mr. Elliott said this would be a total cost of $4,372.50 for the cork, which would be a saving of $2,059.50 over the leather, based on four buffings a year. Reducing this to three buffings a year would increase the net saving to $2,224.50.

Mr. Elliott said he does not have a buffing machine as yet. He figures a roll will run safely for three buffings. Assuming six months to the buffing, he figures a roll will run 18 months; on this basis, he added, the difference in cost would be increased to $3600, or, based on his installation, a saving of six cents a spindle per year.

He next discussed the question of ends down, which, he said, "is quite an important factor." Considering the ends down after doffing, he said, after the first week the leather rolls showed ten per cent less; after twelve weeks the cork was ten per cent less; after twenty-seven weeks the leather was ten per cent less, and continued to show an improvement over the cork. "In other words," he explained, "six months should be the time the rolls should be rebuffed. At the end of forty weeks, the ends down on the leather 17 per cent less than the cork, so that this is a factor in which you would be most interested, as to how long you can run them efficiently. On 21s warp yarn, with a front roll speed of 124 r.p.m., we feel that six months would be the time we would get most efficiency out of them."

Mr. Edwards asked how long leather rolls will run, and Mr. Elliott explained that this depends on how the life is figured, and whether the front rolls are worked back in the frame.

"There is a big difference in leather rolls," declared Mr. Dennis. "We find by not trying to get our rolls too cheaply we get a cheaper roll covering and better work. We covered some rolls for another mill, and had to charge them twice as much as they had been paying. The last report I heard was that those 12 intermediate shell rolls we had covered were all in service and were wearing out the fourth set of the other covering, which meant a 50 per cent saving, outside of having better running work." In response to a query, he stated that his rolls are covered over an all-wool roller cloth.

Break Draft in Spinning.

D. R. Senn, assistant superintendent, Enterprise Mfg. Co., Augusta, Ga., was called upon to report on the test, "What is the best break draft on spinning? What effect does increasing or decreasing the break draft have on breaking strength?"

"I made an extensive test," said Mr. Senn, "using a break draft from 1.1 on down to 1.375. In other words, I changed from our regular set-up with a 20-tooth gear, 1.1 break draft, down to a 16-tooth, giving a break draft of 1.375. I will give you the results of the tests.

"With a 20-tooth gear on the middle roll, break draft, 1.1, total draft, 11.20, average number was 22.23s, with a break of 77 pounds; ends down, 8.

"With a 19-tooth gear on the middle roll, break draft, 1.158, total draft 11.20, average number was 22.02s, with a break of 73 pounds; ends down, 4.

"With an 18-tooth gear on the middle roll, break draft, 1.222, total draft, 11.20, average number was 20.84s, with a break of 77 pounds; ends down, 10.

"With a 17-tooth gear on middle roll, break draft, 1.294, total draft, 13.17, average number was 22.64s, with a break of 66 1/3 pounds; ends down, 15.

"With a 16-tooth gear on middle roll, break draft, 1.375, total draft, 13.17, average number was 22.66s, with a break of 66 pounds; ends down, 16.

"I would like to call attention to the fact that with our regular 20-tooth gear, we were making a 22.23s yarn, and with the 19-tooth gear we made a 22.02s yarn; with the 18-tooth we made a 21.95s yarn; with the 17-gear we made a 19.00s yarn; and with the 16-tooth gear we made a 18.84s yarn, when using the same draft of 11.20.

"On the 17-tooth gear we changed the total draft from 11.20 to 13.17, and with that draft, you will notice we got a 22.64s, and this same draft gave us a 22.66s on the 16-tooth gear.

"In other words, what surprised me was that every time we reduced the gear on the middle roll the yarn got noticeably heavier, and I couldn't figure out any reason for it, and I asked several men. Coming up to Atlanta on the train, I was talking with Mr. Tousignant about it, and he gave me the most satisfactory explanation I had received. He said he didn't see any other reason except that it was slipping through the back roll."

"Increasing the revolutions on the middle roll would have a tendency to jerk the roving through the back rolls," observed Mr. Edwards, who added in regard to break draft that he believed the machinery builders knew what they were doing and that he preferred to run to their standards.

Mr. Peterson explained here that with a variety of warp and filling numbers, his break draft varied according to

(*Continued on page* 685.)

Bedaux System of Mill Operation

Description of Method Installed in Mills at Thomaston, Ga.; Based on Individual Output

BY D. S. KEOGH*

The Bedaux principle is the creation of a French engineer by the name of Chas. E. Bedaux. Mr. Bedaux arrived in this country some twenty years ago. Being both without funds and unable to speak the English language he was forced to accept the humblest of tasks. These included dish washing, excavating in the New York subways and tubes, and later as a textile operator in Paterson, N. J. As he began to master the English language he progressed through industry to the position of clerk. Being then employed by a chemical concern he conceived the idea of presenting to them an unsolicited diagnosis of their power situation. This proved to be so worth while that he was advanced into their engineering group.

Throughout his days as an operator he was impressed with the lack of confidence that existed between employee and employer. He felt that this lack of confidence was the basis of all labor trouble. How then to provide the means to establish confidence. The first logical step was to inquire just what the employee had to offer. This can be readily summed up as time, skill and physical energy output. If little or no confidence existed in neither the minds of management nor labor, possibly this lack of confidence could be attributed to the fact that the worker had no adequate means by which to prove his worth, and management no measure of them by which it could recognize and reward the worker.

Here was found a peculiar condition existing. Management was buying its raw material through universally accepted units of measure, i.e., pounds, yards or pieces. Management was also buying its power and equipment via such things as horse power, watt, or definitely established measures in poundage output or linear feet per minute. Despite this we found they hired their greatest productive force, man, via willy-nilly methods, and with no accepted unit of measure. This led Mr. Bedaux to believe that could a unit be devised that would truly measure the physical energy output of man, the principal part of the labor problem would be solved.

Begun in France.

At that time was begun the theoretical development of the Bedaux unit, commonly called the *B*. Through experimentation and research work basic laws were devised. Sufficient ground work had been done to give the theory a trial. Mr. Bedaux being primarily a smart business man did not wish to make the experiment in this country. Therefore, he took his idea back to France, and was indulging in preliminary steps to its accomplishment when the great War broke out. Being by this time an American citizen he joined up with the Foreign Legion, and after some two years of rather strenuous performance was returned to this country. Still possessing his idea, with, by this time, considerable background, we made our first truly Bedaux application at the Imperial Furniture Company, Grand Rapids, Mich.

We are not in the business of saving badly managed concerns. We are not in any sense efficiency engineers. We have directed ourselves only to the better plants, knowing that where success has preceded our work intelligence is clearly indicated, and intelligence must be part of management's equipment to thoroughly appreciate and operate the Bedaux principle.

I stated earlier that Mr. Bedaux's desire was to create a unit that would measure accurately the physical output of man. This unit that we will refer to as the *B* is arrived at through time and motion studies, with the assistance of basic laws and curves that have been empirically established through our extensive work.

Explanation of the "B."

Roughly defined the *B* is the amount of energy expended by a normal man working at a normal rate of speed in one minute, and is made up of strain and compensating relaxation. If this is true, then the normal man working at a perfectly normal gait should expend one of these *B's* per minute or 60 per hour.

As I have before stated, we have directed ourselves only to the better plants, that, in almost every case, were operating under some form of incentive, principally piece work. Despite this fact we have found that where incentives have been employed management was getting on the average under 50 *B's* per hour from their operators. Where day work existed the average was somewhat under 30 *B's* per hour. Now the true speed of man as developed by Bedaux is 80 *B's* per hour. You can readily see the wide gap between production under day work and piece work in relation to an 80 *B* hour. As an average it is safe to say that Bedaux has increased the productivity of man at least 60 per cent. By doing this it has enabled management to increase wages, simultaneously with decreasing costs.

It is perfectly logical that you should smile at any such statement, for you could apparently argue with reason that piece work certainly is an operative incentive, and that if Bedaux does what I claim for it there must be some miracle attached to it. I can assure you that we work no miracles. It is the sound basis of Bedaux that permits what appears to be excessive production but what in effect proves to be only the good normal gait of man.

Good Base Rate Necessary.

Bedaux succeeds because first it demands that a good equitable base rate, established by the skill of the job, be paid to each operator for each hour in the plant as a minimum wage. This base rate represents what management should pay for a good normal day's work or in our terms what is known as a 60 *B* hour. As the operators on the average pass to an 80 *B* hour they increase their wage in proportion to their capacity to exceed a 60 *B* hour. As they do this a fund is automatically created by setting

*President of The Bedaux Corp., who discussed this subject before the Georgia cotton manufacturers' convention last month.

aside one quarter of the premium created, three quarters going to the productive workers, and one quarter providing a budget from which supervision and indirect workers will be also paid premium as they in turn earn it.

One outstanding reason for the great production Bedaux secures is the fact that we tie in the supervision and indirect worker to the activities of the productive worker. The indirect group can only create premium for themselves when they bring their entire department above a 60 *B* hour, and when they minimize their own expense to meet a standard allowance set for them. When supervision comes to realize that where formerly they were directing unimportant operators they are now in charge of men, who must be properly serviced, encouraged and trained, a different attitude is created, as literally a foreman is put in business by his management and his profits accrue from the sensible, equitable handling of his situation. The individual interest in his operators that comes to foremanship under Bedaux is quite remarkable, and accomplishes having the right man or woman placed on the right job, a thing management has been seeking unsuccessfully for years.

Individual Worker Emphasized.

Bedaux distinctly emphasizes the individual as opposed to the group. And when the operator comes to know that he is now an important individual unit to be measured daily, and to be properly encouraged and serviced by his foreman, a new lease of life is given him. Further, because he is now in a position to prove his worth directly up to highest management he in turn is freed from petty tyranny and injustices that so often exist through the inability of the humble operator to establish himself in the minds of management.

I am not over-familiar with your situation but I know in the north where you find an Irish foreman (I can speak quite freely by choosing that nationality) you would also find many Murphys on his payroll. Maybe a brother-in-law or an uncle or an aunt or a cousin is also harbored under his protecting wing. When that foreman begins working under Bedaux you are apt to find many new names on his payroll, with no clear racial influence. Even if he were foolish enough to take money out of his pocket to humor his intolerance he would not be permitted to do so since the *B* hour would, with higher management conscious of it, eliminate the wheat from the chaff.

Men tend to groups in the hope of creating protection, since they feel their true individual worth cannot be established. Under Bedaux they blazen forth as proud individuals. Bedaux gives security to wage, first through the payment of an equitable minimum wage, second through the guaranteeing that *B* values will not be changed unless process is changed, and third because high earnings can be safely indulged in since they will be the result of definitely set base rates in conjunction with the scientifically set *B* values. It is through the security given that Bedaux has succeeded, and is the chief explanation of the high production gained by it.

Kali Representative in Greensboro.

Norman Maury is now representing the Kali Manufacturing Company, 1410 North Front St., Philadelphia, in the southern territory. He maintains headquarters in Greensboro, N. C., and is at the present time traveling the Carolinas.

Torrington Producing Full-Fashioned Needles.

An announcement of interest to the knitting trade is that The Torrington Co., Torrington, Conn., have added to their production of latch needles the manufacture of full-fashioned or spread beard needles. The Torrington full-fashioned needles are made by automatic machines, designed and built specifically for the purpose, to produce accuracy in formation and dimension. They are packed 1,000 needles to the box, each box containing ten packets of 100 needles, wrapped in anti-rust paper. It is explained that this is a logical step, as the Torrington company for years have been manufacturers of the "Excelsior" brand of latch needles, and it was natural to follow the trend of the industry along full-fashioned lines.

Temperature Control in the Dyehouse.

This is the title of an interesting booklet issued by the Fulton Sylphon Company, Knoxville, Tenn., copies of which may be secured upon application to the company. The booklet covers the subject of automatic temperature control, and its importance, in all phases of textile dyeing, including cotton, wool, silk and rayon. It is well illustrated, and the major portion of the book represents accurate engineering information upon each phase of the subject. It discusses generally each process covered, stressing then the importance of accurate temperature control.

New Reeves Transmission.

Reeves Pulley Co., Columbus, Ind., have issued Catalog No. 88 covering their new and improved variable speed transmission, outlining the improvements made in the belt, splice, frame, etc. Copies are available upon request.

Carding-Spinning Discussed in Atlanta.

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what suited the particular number best, ranging on warp from 1.10 to 1.12, and on filling from 1.12 to 1.20, making 9s to 29s.

Mr. Hames read the report of the Griffin Manufacturing Co., Griffin, Ga., on break draft tests. This was made on 11½s yarn, on a Saco-Lowell frame; 100 bobbins weighed on each test, all spun on the same day from the same bobbins of roving in the creel.

	Average Number	Heaviest Number	Lightest Number	Break of Average Number
With 2 teeth break draft	11.49s	10.75s	12.82s	130.9
With 3 teeth break draft	11.36s	10.64s	12.50s	136.9
With 4 teeth break draft	11.39s	10.42s	12.99s	135.9
With 5 teeth break draft	11.20s	10.42s	12.35s	140.3

Mr. Hames, commenting upon this test, pointed out that, like Mr. Senn, when this mill increased the break draft there was a heavying-up of the number. However, he added, the difference of 10 pounds in the breaking strength shown surely was more than would result from the slight increase in the number.

This concluded the discussion, and after expressions of thanks to Mr. Rogers and Mr. Hames for their work, and to Georgia Tech for handling the meeting so satisfactorily, Mr. Dennis adjourned the meeting. He pointed out that suggestions from any of the members, on any phase of the organization's work, would be welcomed.

CURRENT TOPICS

The Government and Foreign Securities.

Since the war, there has been sold in this country some ten to twelve billion dollars worth of foreign securities. Since 1921, all of such securities that were offered publicly have been "passed on" by the State Department in Washington. Numerous proposed offerings in this country have been withheld because of State Department "disapproval."

The practice of the State Department in viseing foreign securities offered the general public in the United States is now questioned. The practice is not decreed and perhaps not authorized by law. It grows out of a holding by the Department that a "national interest" attaches to these loans of American money abroad. Holders of foreign securities naturally look to the Government for some measure of protection of their interests. Hence the Government feels that it should know something about these securities before they are offered to the public here.

But, it seems that the protection of the public has not been a consideration in its passings on these offerings. The department has withheld approval from none of them because of doubtful merit as investments. Offerings of obviously doubtful worth have been approved as readily as thoroughly sound ones when the "interests" of the Government itself did not require disapproval. Offerings of sound bonds have been "disapproved" when such action served the "interests" of the Government. Settlements of war debt problems with several foreign governments were expedited by the State Department's use of the practice of passing on private loans. Secretary Herbert Hoover of the Department of Commerce brought this practice to his aid when making war on foreign monopoly controls of raw materials, such as the one the British have tried to exercise over rubber. It has been used in other instances for the support of public policies that had nothing to do with the business of private lending abroad.

For this aid procured from investors in foreign securities, the State Department has given nothing. The interests of the investor is the last thing considered; and, in fact, is not considered at all.

Many a foreign bond has been sold in this country on the assurance given by eager salesmen that the State Department had "approved" and hence will see that the contract is kept by the borrower. The practice no doubt has caused many an investor to be lured by the high returns promised on the run of these securities. The Government is under no more obligation to see that a foreign borrower keeps his word than it is to see that a domestic one pays back a loan. All it can do, ordinarily, is to see that American claimants are treated as well as are like ones in other countries. Most of these foreign loans have been floated exclusively in this country, so questions of discrimination are not apt to arise in the cases of many of them.

The run of these loans are probably good investments but a lot of them involve risks which are reflected usually in high interest rates. In view of the many complications which surround them, and the Government's rather singular policy as to public flotations of foreign securities, these loans may be good things for the uninformed investor to let alone.

Problems, Not a Problem.

The absurdity and futility of approaching the agricultural situation in this country as a farm problem instead of as a multiplicity of mostly separate problems is shown by some recent studies of the "average farmer." The most impressive showing is the non-existence of any such person. There is no average farmer in this country. There are more variations in farming than in any other industry. There is more conflict between different kinds of farming, more competition even, than between farming and other industries.

It was found that income for labor and management in farming varied from a loss of $5,582 to an income of $19,925 in 17 States during the last six years. Showings for a group of Virginia farmers, all operating under similar conditions, ranged from $1,365 per capita earnings a year to a loss of $800. In Ohio the range was from $3,908 plus to $136 minus.

Records of 21 Iowa farmers showed that the cost of producing hogs varied for the group from $7.20 to $17.66 a hundred pounds. The low-cost producer received $1.54 a bushel for corn fed while the high-cost producer got only 51 cents a bushel.

Dairying is probably the best systemized branch of agricultural industry carried on in all sections of the country. Yet in a section of the Middle West it was found that butter fat production costs ranged from 24 cents to $1.64 a pound. In a southern community it was found that cotton production costs varied from 10 to 57 cents a pound.

With such variations prevailing, no single scheme of farm relief can be effective.

Curious Statistics.

A writer in a marine journal says that the United States Shipping Board has saved to shippers about $72,000,000 a year in ocean freight carrying costs. Curiously, it is probably an under-statement—insofar as it goes. The estimate is arrived at in this way: The carrying of goods overseas from and to this country has cost since the war about $720,000,000 a year. Since 1920 ocean cargo carrying rates have averaged only slightly above the pre-war level while general prices have been more than 50 per cent above their pre-war range. It is reasonable to assume that Shipping Board operations, carried on at a direct loss of about 50 cents on every dollar's worth of business done, have accounted for enough of the lowering of rates to amount to at least a 10 per cent saving on the total. So far so good.

The statistical sharp who figured it out is over-conservative. He could have shown that the "saving" has been about four times the amount stated. Shipping is peculiarly

A Model Dairy Farm—*and*
A Great Mathieson Storehouse

FROM dairy farming to the manufacture of heavy chemicals may seem a far cry, but not in the case of the Mathieson farm up in Western New York State. For beneath its green pastures lies a great natural storehouse of rock salt—the basic raw material for all Mathieson heavy chemicals.

Today, being merely a reserve source of supply, this property operates as a model dairy farm and earns a small return on the investment it represents. Tomorrow, when nature may be called upon to yield up these resources to industry, there will be available enough salt to supply the Mathieson plant at Niagara Falls for hundreds of years.

By controlling large reserves of salt and other natural raw materials, Mathieson is able to insure dependable service to the chemical consuming industries, not only for the present but for many years to come. It is sound business policy to deal with suppliers who can be depended upon to serve you as promptly and fully in the future as they do today—whose own raw material supplies are amply protected in order to protect in turn those of their customers.

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a world-wide affair. Vessels can be shifted from trade to trade, as shown during the last British coal strike when the Shipping Board threw a hundred extra vessels into service for the purpose of keeping the new movement of coal out of the United States from causing general rates to go to the level of other prices. Any operation that depresses rates to and from the United States has like effect on rates throughout the world. Less than 25 per cent of the world's overseas freight moves to and from the United States. If $72,000,000 were "saved" on that by Shipping Board operations it is reasonable to assume that at least three times as much was "saved" to other peoples on account of the lowering of rates throughout the world. The total "saved" for this and other countries would not be less than $300,000,000 a year.

Thus the ingenious juggler of statistics might make out an excellent case for Shipping Board operations as an adventure in world philanthropy!

Look at the "savings" from another angle. Did all the $72,000,000 inure to the people of this country? Not at all. In the end carrying costs, and savings on them, are shared between buyers and sellers or consumers and producers. Thus folk abroad who bought from or sold to us shared equally with us the "savings" on freight to and from the United States.

Take a hypothetical instance. The Shipping Board, let us say, forces down ocean carrying rates to the point where a bale of cotton can be shipped across the Atlantic for 50 cents less than otherwise would be charged. The farmer does not get the 50 cents. His cotton sells for export at a common price fixed by both foreign and domestic demand. The buyer abroad, or, maybe, the purchaser of the goods ultimately made from the cotton enjoys the benefits of the 50 cents saving. Except as it may quicken demand by lowering for the ultimate purchaser the cost of his exported product, the farmer does not benefit at all from the saving on carrying cost. The "saving" in that instance is an aid to foreign as against domestic manufacturing of the cotton.

The farmer, but more likely someone else, may benefit from the reverse operation. The ship which carries the cotton across the Atlantic may return with a cargo of cotton goods carried likewise at abnormally low rates. The "saving" here will be reflected in the ultimate selling price of the goods. Again foreign manufacturing is helped and domestic manufacturing is hurt.

So the tracing of cause and effect in a realm as embrasive as ocean shipping leads to many curious and anomalous findings.

The "savings" achieved by the Shipping Board's depressive influence on rates are wholly illusory. It has cost more in taxes to provide the ships and meet deficits in their operation than the "savings," on the most liberal basis of calculation have amounted to. Interests that have been hurt by Shipping Board operations have had to contribute to the cost of the injury done them. This is particularly true of privately-owned American shipping, which has had to operate in the overseas trades under rates depressed below normal levels by the Government. It has then had to help pay the cost of the ruinous competition.

Yet the Senate of the United States recently passed a bill authorizing big appropriations for the construction of more ships for operation in perpetuity by the Shipping Board! This despite the fact that the Federal Treasury is being drawn upon for several million dollars a year for the care-taking of laid-up Government-owned vessels that even the Shipping Board cannot operate under terms allowing the Treasury to donate 50 cents for every dollar's worth of carrying that might be done by them.

The New Germany.

It is now eleven years since the United States declared war on Germany. Much less time has passed since one could feel entirely free to say a flattering word regarding that country and its people. But of all the countries taking part on either side in the World War Germany now probably stands best with the United States and the American people. The free interchange of thought and courtesy between the two countries now makes it difficult to remember that only a few years ago they were at each others throats on the field of battle and were saying and doing things which seemed to presage eternal enmity.

Germany has recovered more impressively than any other of the European countries that went to the brink of utter disaster in the war. This may be because, being the chief loser, Germany went further than the others. She had no spoils to quarrel with others about or to put false faith in. The disaster to the German Empire was so complete as to have in it the seeds of quick recovery. The national debt was wiped out by deflation. Restrictions imposed by the Versailles Treaty saved many millions to Germany that otherwise would have gone into continued military activity. Nothing was left for the Germans to do except get down to work. They can work and they can think—two processes that combined are unbeatable.

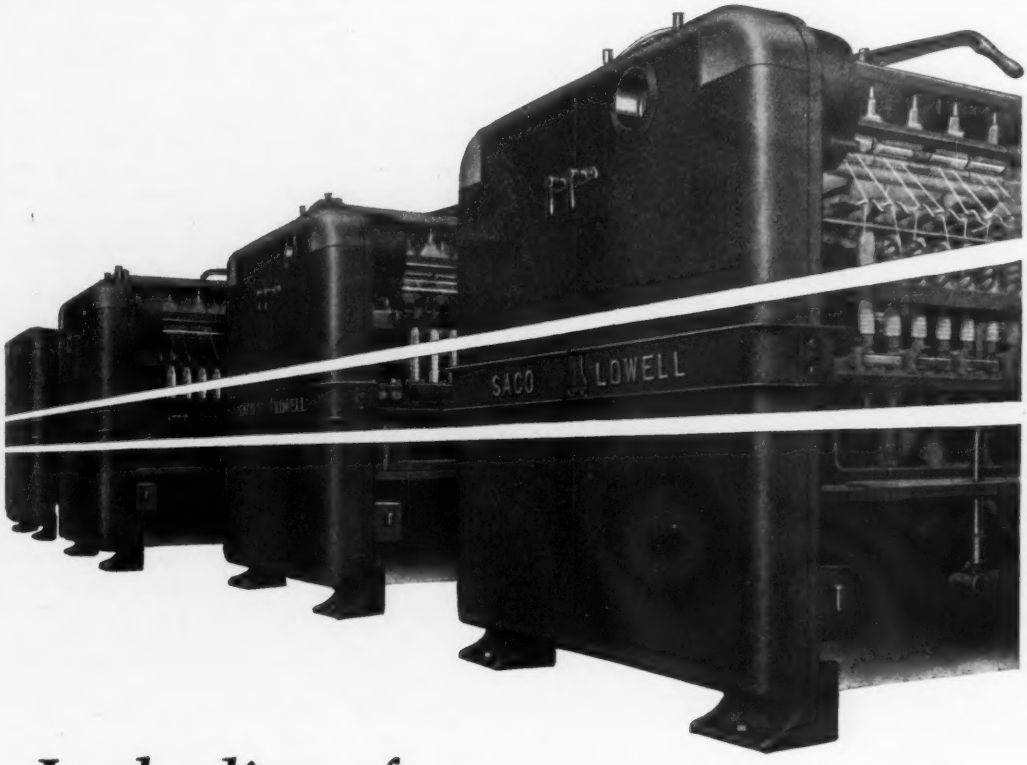
It is worth noting, as an example of peculiar interest to the readers of this journal, that Germany led all other countries in the purchasing of American cotton during the last season—and is again leading, by even a larger margin, this season. For more than a century cotton has been the strongest of chains linking this country economically with Great Britain. Apparently the relationship is shifting somewhat to Germany and is an evidence of that country's extraordinary "come back."

What the Southern Mills are Doing.

Activity of a construction and building nature among the southern mills for the past month continued along the lines of furthering plans for previously announced projects and the announcement of several major developments and proposals.

In Alabama, a further step was taken in connection with the Alabama Mills Company, which are to erect ten 10,000-spindle mills in ten towns in Alabama, by the appointment of Batson-Cook Company, of West Point, Ga., as building contractors, this contract including the work on mill buildings, warehouses, cottages and other miscellaneous building construction. Robert & Company, Atlanta, are the engineers. Contract for the humidifying equipment for the ten mills has been awarded to the American Moistening Company.

Acme Weaving Mills, Inc., have been formed to take over the plants of the Noble Manufacturing Co., and the Anniston Textile Mill, at Anniston, Ala. E. W. Bullard heads the company.



In the line of

PROGRESS

THE name Saco-Lowell always comes to the front when new developments in textile machinery are discussed. For years the developments in spinning frames by our Biddeford engineers have made them leaders in the field. Right now the new Saco-Lowell spinning frames, due to their design and workmanship, offer opportunities to lower production costs. Their rugged construction gives a staunchness that insures the maintenance of this quality of output year after year.

If you do not find a copy of our "Bulletin" in your mail, addressed to you personally, send us your name and address. You'll find it full of news and facts—things you want to know.

SACO-LOWELL

147 MILK STREET, BOSTON

CHARLOTTE, N. C. GREENVILLE, S. C. ATLANTA, GA.

Strowd-Holcombe Cotton Mills, Birmingham, Ala., have placed contract for humidifiers and automatic controls for the addition they are erecting, with the American Moistening Company.

It is definitely announced that Floyd W. Jefferson, of New York City, and other owners of the Fitzgerald Cotton Mills, Fitzgerald, Ga., will erect a new mill at that place. The company owns also the Cochran Mill, at Cochran, Ga., and the report states that some machinery from this place will be removed to the new unit at Fitzgerald. W. H. Mooney, and associates, of Fall River, Mass., recently acquired the branch plant of the company at Hawkinsville, Ga. It is stated that a large portion of the capital stock for the new enterprise was subscribed by local citizens of Fitzgerald.

Buchanan, Ga., is continuing plans for the location of a cotton mill at that place, a considerable sum having been subscribed toward the capital stock. C. E. Pearce, agent, Tallapoosa Mills, Tallapoosa, Ga., is investigating machinery in the East for possible removal to such a plant if erected.

Swainsboro, Ga., and Chatsworth, Ga., are both reported actively interested in establishing a plant within their territories.

Caroline Mills, Carrollton, Ga., have been formally organized. The unit consists of 4,000 spindles for coarse yarns. The plant is already in operation. The officers are: C. E. Roop, chairman, B. F. Boykin, president, L. J. Brock, vice-president, G. C. Cook, treasurer, and P. L. Shaefer, secretary and general manager

Elberton Cotton Mills, Elberton, Ga., are installing 62 new looms to replace existing equipment.

It is announced that Sayles-Biltmore Bleacheries, Biltmore, near Asheville, N. C., will erect two additional buildings at a cost of approximately $1,500,000, which will practically double the output of the plant, giving a capacity of more than 1,000,000 yards weekly. The new units will be for bleaching and finishing purposes, no additions being necessary in the power plant and auxiliary buildings.

It is also reported that the Beacon Mfg. Co., Swannanoa, N. C., will make considerable additions to their plant and village.

Stowe Thread Co., Belmont, N. C., has been organized with a capital of $750,000, for the manufacture of coarse yarns, with an initial equipment of 5,500 spindles. R. L. Stowe, S. P. Stowe, and A. C. Lineberger are the incorporators.

Hickory Weavers, Inc., Hickory, N. C., have been incorporated by Francis F. Patterson and others, and a mill for manufacturing plush and similar fabrics will be erected. Mr. Patterson is a son of the late Samuel F. Patterson, of Roanoke Rapids, N. C.

Through the Charlotte office of Lockwood, Greene & Co., engineers and architects, the contract for general construction of a new mill for the Hart Cotton Mills, Tarboro, N. C., has been let to Brown-Harry Construction Co., Gastonia, N. C. Lockwood, Greene & Co., Inc., are the engineers on this job.

It is reported that the Katterman & Mitchell Co., Paterson, N. J., are planning the establishment of a silk mill at Stanley, N. C. They have taken over the Lola Gingham Mill plant and plan to install machinery at an early date.

Cleveland Cloth Mills, Shelby, N. C., are erecting a 112x90 foot addition, in which 100 additional Crompton & Knowles box looms will be installed. The looms will be driven with individual motors.

The 125x617 foot extension of the Acme Spinning Co., Belmont, N. C., has been completed, and 16,500 additional spindles will be installed.

Rudisill Spinning Mills, Inc., have been incorporated to take over and operate the Roseland Spinning Mills, Lincolnton. A. A. Whitener, Hickory, N. C., is president, C. A. Rudisill, of Cherryville, N. C., vice-president and general manager, and M. M. Rudisill, secretary-treasurer. It is understood that extensions to the plant will be made and modern machinery installed.

Arkwright Mills, Arkwright, S. C., have increased the capital stock from $200,000 to $400,000.

Lockwood, Greene & Co., Inc., engineers of Spartanburg, S. C., and Boston, Mass., have been commissioned by the Pacolet Mfg. Co., Pacolet, S. C., to render services in connection with improvements to their general power layouts, together with lighting plan for the mill and village.

Plans of the Pendleton Mfg. Co., Autun, S. C., call for the ultimate doubling of the plant's capacity, according to Eugene Sitton, owner and proprietor. The weave shed will be doubled with an extension of standard mill construction, one story high, and more looms added. Also 35 additional cottages will be erected in the village. The plant produces Jacquard velours, laundry net and padding, etc.

Contract has been let through the Spartanburg office of Lockwood, Greene & Co., Inc., engineers and architects, for a centrifugal pump complete with fittings, etc., for the Whitney Mfg. Co., Whitney, S. C., to the Dayton-Dowd Co., of Charlotte, N. C.

It is reported that 25 new cottages will be erected by the Aragon-Baldwin Mills at the plant in Whitmire, S. C.

Gallivan Building Company, Greenville, S. C., are the contractors for erecting the Renfrew Mfg. Co., Travelers Rest, S. C. It is stated that the plant will be completed about June 15th. Contract for 60 houses for operatives has been awarded to Cox & Hodgens, of Greenville.

Lockwood, Greene & Co., Inc., engineers, have been commissioned by the Gaffney Mfg. Co., Gaffney, S. C., to render services in connection with supervision of installation of looms in the basement of the mill—and the lay-out of looms, shafting, power and light wiring, etc.

Clinton Cotton Mills, Clinton, S. C., plan to install ultimately 11,000 additional spindles. Of this number, 3,000 are in place, and later another building to accommodate the remaining 8,000 will be erected.

Lane Cotton Mills, New Orleans, La., have placed contract with American Moistening Co. to humidify their four-story carding mill, and to revamp the main spinning room with new type humidifiers and automatic humidity controls.

An executive committee for the Southwest Textile Mills, Dallas, Texas, has been named. This organization was formed to promote and establish a $900,000 cotton mill in Dallas, and plans later to secure a $700,000 finishing plant. The committee is composed of S. B. Perkins, A. H. Bailey, Sam A. Leake, Carr P. Collins, J. Perry Burrus, E. R. Brown, J. L. Lancaster, A. A. Jackson, John W. Carpenter, R L. Thornton, Everett S. Owens, F. F. Florence, Edward T Moore, and Nathan Adams.

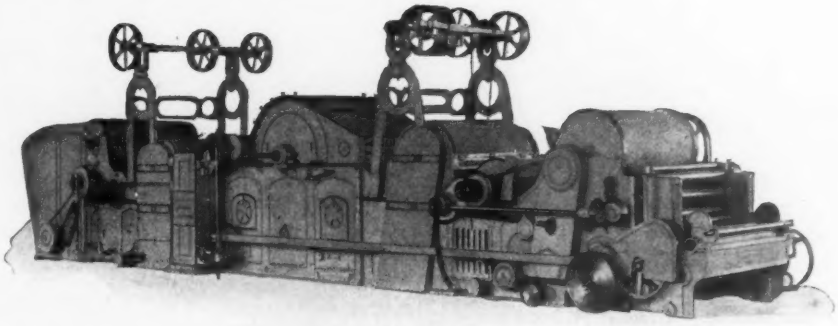
Orange Textile Mills, Inc., Orange, Va., will erect a plant. William M. Black, of William A. Black & Sons Mills, Baltimore, Md., will be the resident manager. It is

H & B AMERICAN MACHINE CO.

PAWTUCKET, R. I.

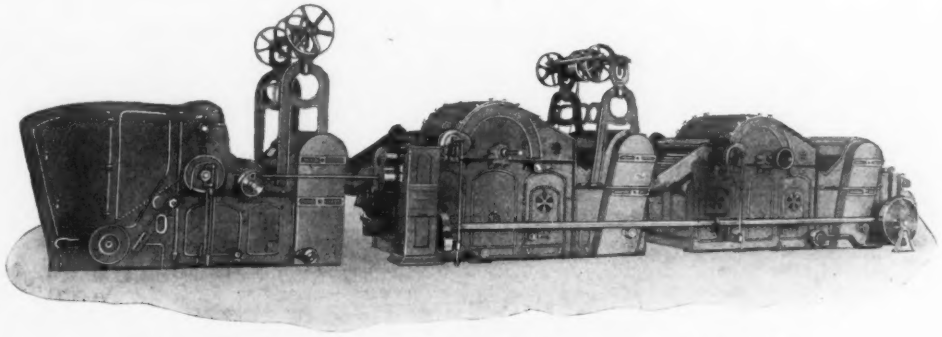
Southern Office, 814-816 Atlanta Trust Co. Bldg., Atlanta, Ga.

MAXIMUM CLEANING WITH MINIMUM BEATING



Combination No. 3 Feeder and Single Buckley Opener Breaker Lapper

Our BUCKLEY OPENER BREAKER LAPPERS have great cleaning power combined with gentle treatment of the cotton. Continuous gridded surfaces from cylinders to cages, full width feed, perfect regulation in weight.



Combination No. 3 Feeder and Double Buckley Opener Breaker Lapper

By employing more than one cylinder, it is possible to clean the lowest class of cotton upon the Buckley principle with a minimum of beating.

understood machinery will be removed from the East.

Additional group insurance benefits have been provided for employees of the Randolph Mills, of Franklinville, N. C., through the purchase of accidental death and dismemberment protection and sick and accident insurance from the Metropolitan Life Insurance Company. Life insurance approximating $150,000 was given the employees under an earlier plan. According to salary, each subscribing employee receives accidental death and dismemberment protection ranging from $1,000 to $2,000. The health and accident benefits are on the same basis, and amount to $7, $10.50, or $14 a week. Under the terms of this policy, payments will continue in each case of disability for a maximum of thirteen consecutive weeks.

The new insurance provides accidental death benefits ranging from $1,000 to $2,000. These are payable if an employee dies as the result of an accident, while similar amounts will be paid if the employee suffers the accidental loss of any two members, such as both arms, or both legs. Indemnity for the loss of one member equals one half the accidental death benefits. In addition to the triple coverage provided, insured employees are offered the advantages of a health advisory bureau.

New England Mill Situation.

The committee of stockholders that has been at work for some little time past liquidating the Lyman Mills of Holyoke, Mass., has already distributed $190 per share and expects that it may be possible before the final liquidation to add $15 to this total. When the meeting was held at which liquidation was voted it was generally conceded that the property might liquidate at $165 per share but even this was thought to be exaggerated. This return was far better than any made thus far to stockholders who have voted to discontinue cotton manufacturing in New England.

Following the great fire at Fall River, Mass., where nearly $10,000,000 worth of property was destroyed in the business center of the city, the community seemed stunned for a time as this disaster came upon them following the closing of mill after mill, some of which will never be operated again. Within the past month a decided change in sentiment appears to have taken place and in addition to the rebuilding of the burned district which is being undertaken plans are being discussed for refinancing several of the weakened or idle mills through the formation of a merger. The matter has been under discussion for a long time and the new feature in the situation is that some outside financial interests have begun to listen to propositions for rehabilitating some of the plants and reorganizing their merchandising policies.

The most definite thing that has been reported as having been done is that figures have been submitted showing how it would be possible to reorganize the properties under a financial consolidation that might not require more than $5,000,000 new capital. As it seems quite possible that existing bank loans may be liquidated through the acceptance of security or bonds from a new corporation.

Another form of mill consolidation that is being talked of in some of the cotton mill centers is to absorb some finishing plants and some active New York mercantile house in a merger that will have as a foundation two or three of the large fine and fancy goods mills. Several plans have been under consideration and by the middle or end of this year it will not be surprising if what are termed "vertical textile units" may begin to appear and to exercise a condesirable influence in the marketing of specialty textile products.

On the 9th of April notice was given by 27 of the cotton mill corporations in New Bedford of a purpose to reduce wages beginning Monday, April 16th, by about ten per cent. Fully 25,000 operatives were affected. Labor unions had been holding meetings and strike talk had become general. The reduction was forced upon New Bedford mills by those that began in northern New England three months ago and extended to include all the Fall River mills and many other mills in different parts of this section. Several reductions have gone into effect without much attention having been paid to them by the newspapers.

In meeting competition for the limited business that has been offering in fine and fancy goods, New Bedford mills have been at a serious disadvantage for some time. The prices at which many contracts have been accepted are evidence in themselves that several mills have cut their costs in many ways and chiefly by revising the wage schedules. The market was not much disturbed by the threat of a strike as there is no pressure for goods and because the mills have been curtailing an average of 25 per cent or more for some weeks without causing any serious inconvenience to buyers. There is no difficulty apprehended by many of the customers of the mills for the reason that they have not yet begun to place Spring orders and can wait another couple of months before moving.

The curtailment of production that has been going on throughout New England cotton mill industries has been substantially greater than would be inferred from the average figures of curtailment for March published by the Association of Cotton Textile Merchants of New York. According to those figures the average curtailment in the industry was 13 7/10 per cent of the production record of October last. Such large units of production as the Pepperell of Biddeford has been curtailing 25 per cent, the Naumkeag Mills of Salem, 25 per cent, the fine goods mills as a whole, between 25 and 26 per cent, the Fall River mills, 50 per cent, and the mills in Manchester, N. H., 40 per cent.

The number of mills making print cloths, sheetings, or heavy plain goods is so relatively small that their curtailment cuts little figure in the total shown by the Association figures. The greatest curtailment is in the fancy production where looms have been allowed to stand idle when orders have expired. Yarn curtailment is stated to average more than 25 per cent.

While this great curtailment has been going on in the fabric mills the cloth printing establishments have been busier than ever before in their history. Some of the large job printing establishments have been operating over-time for weeks past. The large units of corporation printers, such as the Pacific, American, Algonquin, Arnold, and Windsor have been running to capacity with some departments being operated at night to insure the delivery wanted by the trade. The class of printed work being turned out has also been costlier than at any previous time. A great deal of rayon mixed materials is being printed and the

For their most exacting work Breslin Brothers Choose Halton Jacquards

THE delicate design, the intricate pattern, and the harmony of color in the ancient Persian "Tree of Life" lives again in the Breslin Rug.

Halton Jacquards were selected by the Breslin Brothers Carpet Company as the best feeder for the non-repeat pattern of thirty rich colors in the rug. Over eleven thousand Jacquard cards must pass through the Halton Jacquard to weave one rug.

Halton Jacquards are the standard equipment of the Breslin Brothers Carpet Company.

We do harness building of every description.

We are prepared to furnish at short notice comber-boards, lingoes, mails, etc. Ingrain and Brussel parts.

We do replacing and repairing of Jacquard machines of other makes as well as our own.

Immediate and expert attention our guarantee.

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THOMAS HALTON'S SONS

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Selling Agent
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P. O. Box 1663, Paterson, N. J.
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FRED H. WHITE
304-8 Independence Bldg.
Charlotte, N. C.

"USE A HALTON JACQUARD AND YOU USE THE BEST"

yardage of fine combed goods going through the print works is very large. This condition can be inferred from the domination of the markets by printed goods this season.

The finishing plants have not done as well except where they have been handling plain rayons or printed materials in some form. The volume of piece dyeing has been the lightest ever known in relation to the yardage movement of printed goods. Some of the finishing plants that are famous for dyeing black goods have been operating less than half capacity for some months and the demand for black goods is stated to be lighter in proportion to the general movement of merchandise than merchants have hitherto known.

The bleacheries handling 4-4 goods have been operating to an average of less than 50 per cent capacity and those of them engaged on wide sheetings or sheet and pillow case have been running light for nearly three months. Nearly all the large finishers have been increasing the volume of rayon goods handled. There is a marked tendency among them to expand their facilities for fast dyeing as the market demand appears to be broadening in that direction.

There has been no improvement in the situation of mills equipped for making ginghams. The business has been very limited and it is estimated by some manufacturers that two-thirds less looms are now running on ginghams than were active three or four years ago. The lack of demand primarily is attributed to the popularity of printed goods and the fashion trend against gingham. New prices for Fall ginghams are to be announced about the last of April.

The volume of flannel business booked by New England mills has been substantially less than a year ago but there is a general conviction among manufacturers that wholesalers and cutters will be in the markets in the next few weeks for the goods they would normally require and would have ordered before now. As cotton has advanced steadily the large flannel manufacturers are not disposed to encourage thought of price concessions when business is resumed.

The fancy blanket business booked went largely to the mills that guarantee price protection to their customers who act as agents for the sales of the line. It is stated that the Nashua, Beacon, and Esmond mills have good orders in hand and that some of the mills in Maine that specialize in part wool-cotton blankets have booked business enough to keep them occupied through the Summer.

While the business on bedspreads has been generally poor, the Monument Mills of Housatonic have been running double time on their bedspread product for two months past and have orders in hand that will keep them similarly busy for at least two months to come. They have developed several new lines of all-cotton goods with colored foundations that are being used largely in hotels and institutions and they have also been busy on medallion center work for many customers. The Stevens Mill at Fall River, one of the largest bedspread manufacturers has virtually abandoned the production of all-cotton spreads and is more active on specialities for upholstery and drapery purposes in which rayon content is a large factor.

The machinery plants are only moderately busy. There is a growing demand for long draft spinning equipment and it is now being supplied by three or four of the largest producers of ring spinning frames. The new manufacturers are also moderately busy but on the whole there is no rush for new machinery evidenced in the operations of the several large plants in the district.

Business in combed cotton yarns has been very disappointing for some time and the profit margin has become decidedly narrow on anything of a staple character. On the other hand there are three or four large mills that specialize on carded yarn products that are well occupied but are stated to have accepted business after very close competition and with the purpose in mind of retaining customers whom they have served for many years.

Cotton Comment.

BY H. AND B. BEER.

New Orleans, April 9th, 1928.

The trend of the cotton market was upward during the past month, the result of less favorable weather inland, larger consumption than expected, the limited supply, especially of certified cotton with which to liquidate contracts, the stock of which has been decreasing steadily in New York, New Orleans, Galveston and Houston, and of late because of the astonishing large survival of boll weevil per ton of moss. Compared with one month ago spot cotton is about $7.50 per bale dearer, contracts in proportion.

Because of the smaller supply and higher prices than one year ago, takings by spinners of the world continue to run behind last season, but are sufficiently large to reduce the available at the close of this season to dangerously low proportions, especially in event of prospects being for not better than a moderate crop much less another small yield.

CENSUS REPORT

United States— Bales—	This season	Last season
Consumption, February	574,000	590,000
Consumption, 7 months	4,199,000	4,019,000
Mill stocks, February 29th	1,669,000	1,932,000
Stocks in public storage, etc.....	4,313,000	5,453,000

WORLD'S INDICATED AVAILABLE SUPPLY OF AMERICAN COTTON APRIL 6TH. EXCLUSIVE OF WORLD MILL STOCKS

Bales—	This year	Last year
Unmarketed, estimated	2,480,000	3,190,000
World's visible supply	4,188,000	5,850,000
World's available, about	6,668,000	9,040,000

Present indications point to a probable world's carryover of American cotton at the close of the season of about 4,500,000 bales versus 7,238,000 as reported by Secretary Hester at the close of last season and 7,800,000 as reported by the government at the close of last season. It is evident, therefore, that a crop of about 15,500,000 bales will likely be required for next season, exclusive of linters, or a total yield, including linters, of about 16,500,000 bales.

As to prospects for the new crop, the outlook at present is hardly as favorable as it was one month ago, so far as preparations are concerned, especially in the eastern half of the belt where there has been too much rain of late, and in the extreme West Texas and West Oklahoma where there has been an insufficient supply of moisture for subsoil reservation. In addition temperatures have been too low throughout the belt, in some sections necessitating replanting, and delaying germination in other districts, and will probably make poor stands with cotton above ground.

Returns to Secretary Hester show large sales of fertilizer tags, which would be of material benefit to the crop by increasing the yield per acre, especially in Mississippi, Alabama and the South Atlantic States where the major portion of plant food is used in the making of a crop. But

TEXACO—for Dependable and Economical Lubrication—TEXACO

Showing HOW

TEXACO LUBRICATION ENGINEERS help reduce Power Costs

TEXACO Lubrication Engineers know their job.

With utmost confidence and promptness—regardless of the type of machine or conditions — they have been able to suggest ways and means of cutting lubrication costs, improving machinery operation, increasing production and enhancing profits.

In one Textile Mill the start was made on the spinning frame spindles.

There, our engineers volunteered to reduce the temperatures by replacing the oil used, with TEXACO Spindle Oil.

This was agreed to, and all of the frames were lubricated with Texaco Spindle Oil—with the exception of 12 frames which were left with the ——— Company's oil, a product of high quality.

After the change, it was found that the spindles lubricated with TEXACO Spindle Oil were decidedly cooler than those lubricated with the old oil.

And we went even further:

We put TEXACO Spindle Oil on *one side* of the 12 frames using the old oil, and *in ten minutes* the temperature of these spindle bases also dropped.

In the end, friction was considerably reduced, and a material saving in power effected.

This shows only one of the many possible ways in which you may benefit by calling (without obligation or cost) upon the services of our Textile Lubrication Engineers.

There is a TEXACO LUBRICANT for every purpose in the TEXTILE INDUSTRY

And, you will find, as many mills attest, that TEXACO TEXTILE LUBRICANTS are of the highest quality, and the most economical to use.

THE TEXAS COMPANY

Texaco Petroleum Products

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OFFICES IN PRINCIPAL CITIES

future weather conditions and boll weevil developments have to be reckoned with. Total sales of fertilizer tags for eight months ending March 31st, were 3,776,356 tons versus 2,687,070 for the corresponding period last year and 3,452,171 season before last.

GOVERNMENT BOLL WEEVIL REPORT.
SURVIVAL OF WEEVIL PER TON OF MOSS.

	This year	Last year
North Louisiana	1.0	4.0
South Louisiana	365.1	70.0
Louisiana, state average	65.9	15.7
South Carolina	21.1	none
Georgia	88.7	no report
Alabama	45.2	no report
Texas	74.5	no report

All examinations, with the exception of those in Texas, were made from February 21 to March 10. Those in Texas were made on January 14, 15, and 20 and February 24. The boll weevil report was released on April 5th.

In conclusion, the government stated: "Although the figures presented above are indicative of the percentage of weevil survival, it is recognized that the examinations were made at an insufficient number of points to give figures from which accurate conclusions may be drawn for the entire cotton belt."

In Louisiana examinations were made at 14 points, in Alabama at three points, in Georgia at four points, in South Carolina at several points, and in Texas at three points.

Since numerous other periodical reports will likely be made as to the weevil survival as the season advances, this report is in the nature of a preliminary statement. Nevertheless, it is of vital importance to the cotton trade, and will probably create much uneasiness pending the release of reports later in the season.

Inasmuch as the preliminary weevil survival report shows a larger number of live weevil than at this time last year at reporting stations, except in Northern Louisiana, the trade has reason to be apprehensive as to the outcome of this year's crop. Much will depend on the character of weather to be experienced next Summer. If a wet Summer is experienced, as was the case last year, heavy weevil damage may be the result, but a hot, dry Summer would probably make for a good crop by holding the weevil in check.

New Arabol Book.

The Arabol Manufacturing Co., 110 East 42nd St., New York City, have just issued a useful publication constituting a reference book dealing with their leading standard manufactured products. Among the products covered are the company's finishing materials, size, boil-off compounds softeners, gums, weighting compounds, etc. Each product is discussed, outlining the recommended uses in each case, as well as pointing out the company's standards of manufacture, etc.

Robert Cowan Joins Quaker City.

Robert Cowan, well known textile chemist, has joined the staff of the Quaker City Chemical Co., Philadelphia, Pa., and will work from the southern office of the company at Knoxville, Tenn. Mr. Cowan has had an extended experience in woolen, cotton, and underwear plants, and dyeing and finishing materials. W. S. (Bill) McNab, former representative of the Quaker City Chemical Co., has been promoted to the position of southern manager, with headquarters at 1210 General Building, Knoxville, Tenn. Mr. McNab will continue to travel among the mills.

Additional Personal Notes.

H. P. LEHMANN, former sales manager of the Black Manufacturing Co., Seattle, Washington, has joined the Byron G. Moon Co., Inc., Troy, N. Y. He is widely known in merchandising and advertising fields, which will represent the scope of his activity in his new connection.

WALTER ANDERSON, for ten years assistant treasurer of the E. H. Jacobs Manufacturing Co., Danielson, Conn., has resigned and is in the mill supply business at 65 Broad St., Danielson.

H. B. CLYBURN, SR., has been promoted to the night superintendency of the towel mill of the Cannon Mills, Kannapolis, N. C. He succeeds Lloyd C. Harmon, who has been transferred to Concord, N. C.

U. SMITH WASHBURN, selling agent of Saco-Lowell Shops, in the Charlotte, N. C., office, died at his home in Charlotte, on Monday, March 19th, following a heart attack. Mr. Washburn, a native of Massachusetts, has been in the South for thirty years. He was 62 years of age, and his wife and several children and two brothers survive him.

J. W. (JACK) SLATER, New Orleans representative of the New York & New Jersey Lubricant Co., died in New Orleans on March 15th, following an extended illness. He had been connected with the company since 1916. Prior to that time he was associated with the Whitin Machine Works and other textile machinery manufacturers. He had been New Orleans district sales manager since 1920, for N. Y. & N. J. Lubricant Company, after having been connected in the Charlotte and Atlanta territories of the company.

Changes in Saco-Lowell Southern Force.

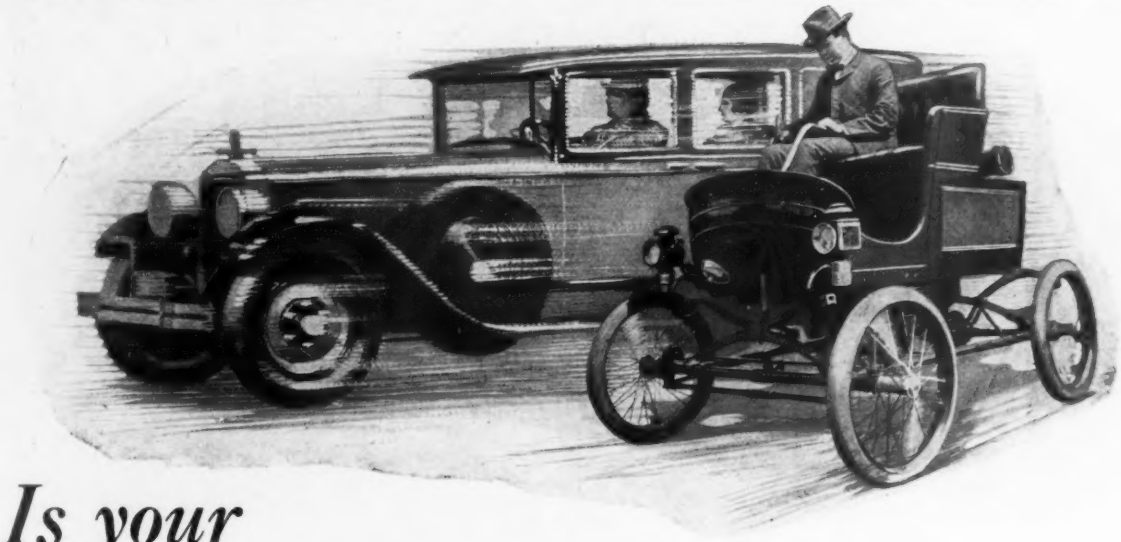
John L. Graves, for a number of years manager of the Greenville, S. C., office of Saco-Lowell Shops, has been transferred to the Charlotte headquarters as selling agent, following the death of U. S. Washburn. H. P. Worth, of the Charlotte office, has been made manager of the Greenville office. Both Mr. Graves and Mr. Worth are well known in the field. Mr. Worth was for a time assistant superintendent of the Pomona Mills, at Greensboro, N. C.

Fred L. Bryant in Charge of New Office for Grinnell and American Moistening.

Grinnell Co., and American Moistening Co., Providence, R. I., have announced the opening of a sales office at 509 Masonic Temple, Greenville, S. C. Fred L. Bryant, who has been with J. E. Sirrine & Co., since 1919 and for three years was manager of the Chattanooga, Tenn., office of this firm, will be in charge of this new office, which will handle sales of the American Moistening Company equipment in South Carolina.

C. & K. Announce New Harness Cord.

Crompton & Knowles Loom Works, Worcester, Mass., have announced and are distributing a new harness cord for looms known as the New C. & K.— Silver Lake Harness Cord, for which additional strength with minimum strength is claimed; as well as the elimination of lost time, etc., due to excessive breakages and stretching. The Silver Lake Company, nationally known manufacturers of sash cord, are making the new harness cord exclusively for Crompton & Knowles Loom Works, it is announced.



Is your

HUMIDIFYING SYSTEM *as out of date as the* "one lunger" of 1898?

OF COURSE, everybody would pass you today if you still drove a "one lunger" of The Gay Nineties—But what about your mill's humidifying equipment? If that, too, is antiquated, or even lacking modern refinements, it can't win today's competitive race.

Tying up end-breaks, stopping frames, poor working conditions, too many seconds,—all cut production and profits. These, and lost regain, are part of the price you pay for inadequate or poorly controlled humidifying equipment.

Modern Amco Humidifiers and simple Amco Humidity Control pay for themselves in a short time, often in months. They are, therefore, not an expense but an immediately profitable investment.

This newly designed Amco Humidity Control automatically regulates and controls humidity in Textile and other mills without using wet or dry bulb actuated devices.

Scores of mills are boosting profits by modernizing their humidifying systems. Why don't you, too, call in the Amco "Air Doctors"? These engineers will study your plant conditions, and give you a written report without cost or obligation.

Their prescriptions often turn red figures into black. Write or wire us today.

AMERICAN MOISTENING CO.

Humidifying Devices

Air Doctors Since 1888

EXECUTIVE OFFICES
261 West Exchange Street,
Providence, R. I.

SALES OFFICES
Boston, Mass. Atlanta, Ga.
Charlotte, N. C. Greenville, S. C.

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

HENRY WARREN REDING has been appointed Textile Engineer of the Westinghouse Electric and Manufacturing Company in charge of that company's activities in connection with the Textile industry. He will be located at East Pittsburgh, Pa., and will be responsible for the application and successful operation of the textile equipment of Westinghouse customers. Mr. Reding was graduated with a degree of B.S. in E.E. from Kansas University in 1911. After graduation he entered the employ of the General Electric Company with whom he stayed until 1920. During the world war he served in the U. S. Navy. Prior to his connection with the Westinghouse Company he was employed by Lockwood Greene and Company, engineers, specializing in textile mill location and construction. "Doc," as he is well-known to his southern friends, has been in the Atlanta office of Lockwood, Greene for a number of years.

CHARLES MERRIMAN, JR., has become manager of the Highland Mills, Griffin, Ga., following the recent death of W. F. Ingram, president and manager. Mr. Merriman is the son of Charles Merriman, general manager of the Manville-Jenckes Co., Pawtucket, R. I.

THOMAS H. JOHNSTON, president and general manager of the Knoxville Knitting Mills Co., Knoxville, Tenn., a former president of the National Association of Hosiery and Underwear Manufacturers, died in Baltimore, Md., on Thursday, April 5th. William C. Ross, vice-president, has been made president succeeding Mr. Johnston. George P. Gaut is now vice-president in charge of sales. L. O. Wilson, formerly assistant to Mr. Johnston, has been named general manager, succeeding him in that position.

L. L. HOLCOMB has resigned as overseer of weaving at the Monaghan plant, Victor-Monaghan Co., Greenville, S. C., and has been succeeded by A. B. Cothran.

J. C. EVINS, president of the Clifton Mfg. Co., Clifton, S. C., has been named president also of the D. E. Converse Co., Glendale, S. C., succeeding Wilton E. Lindsay, who died recently. S. J. Dupre, secretary, has been made assistant treasurer also.

J. G. MCNEIL, who for the past three years has been superintendent of the Greenwood Cotton Mills, Greenwood, S. C., has become superintendent of the Ninety-Six Cotton Mills, Ninety-Six, S. C., under the same management, succeeding John F. Long, resigned.

ARTHUR E. TOUSIGNANT has been promoted from assistant superintendent to superintendent of the Aiken Mills, Bath, S. C., succeeding David Tousignant, resigned.

D. E. TRASK has resigned his position as superintendent of the yarn and cloth mill at the Institution of Correction, Dannemora, N. Y., and will take several months' rest. His address is Box 97, Franklin Springs, N. Y.

C. H. KEIFFER, formerly manager of the Paducah Hosiery Mills, Paducah, Ky., has joined the staff of the Washington Hosiery Mills, Nashville, Tenn., as assistant to O. B. Washington, general manager.

J. L. GRANT, for some time connected with the Red River Cotton Mills, Rock Hill, S. C., has become overseer of the cloth room at the Osage Mfg. Co., Bessemer City, N. C.

T. A. WARBURTON has resigned as overseer of carding at the Farr Alpaca Company, Holyoke, Mass., and accepted a position as superintendent of the Warwick Mills, Centerville, R. I.

C. H. NEWTON has been made vice-president and chairman of the board of directors of the Southern Manufacturing Co., Athens, Ga. H. F. Patat is secretary and treasurer. D. C. Collier, formerly of Barnesville, Ga., recently became president, with J. O. Blackmon as general superintendent.

W. B. KITCHINGS has resigned as superintendent of the Montala Mfg. Co., Montgomery, Ala. He is succeeded by George W. Johnson, who has been superintendent of the Cochran Cotton Mills plant at Hawkinsville, Ga.

Z. T. HAWKINS has become overseer of twisting at the Thomaston Cotton Mills, Thomaston, Ga. He formerly held a similar position at the Loray Mill, Manville Jenckes Co., Gastonia, N. C.

J. L. PADGETT has been promoted from night overseer to day overseer of carding at the Lonsdale Co., Seneca, S. C.

G. A. LAY has resigned as overseer of jack spinning at the Draper-American Mills, Draper, N. C., to become overseer of carding and spinning at the Clyde Mills No. 2, Newton, N. C.

IRVING D. KIMBALL has resigned as southern manager for the Parks-Cramer Co., Charlotte, N. C., and will be succeeded by Howard M. Parks, president of the company, who will divide his time between the Charlotte and Fitchburg, Mass., offices of the company. Mr. Kimball has become district manager for the Investors' Council of America.

W. J. JENNINGS has become overseer of carding and spinning at the Minneola Mfg. Co., Gibsonville, N. C. He was formerly connected with the L. Banks Holt Mfg. Co., Graham, N. C.

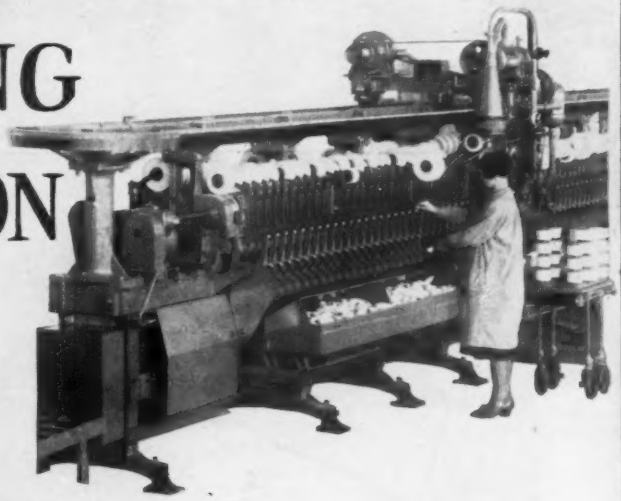
CARL T. TOURTELLOT, works manager of the Renfrew Mfg. Co., at Adams, Mass., has become general manager of the Renfrew Mfg. Co. plant at Traveler's Rest, near Greenville, S. C.

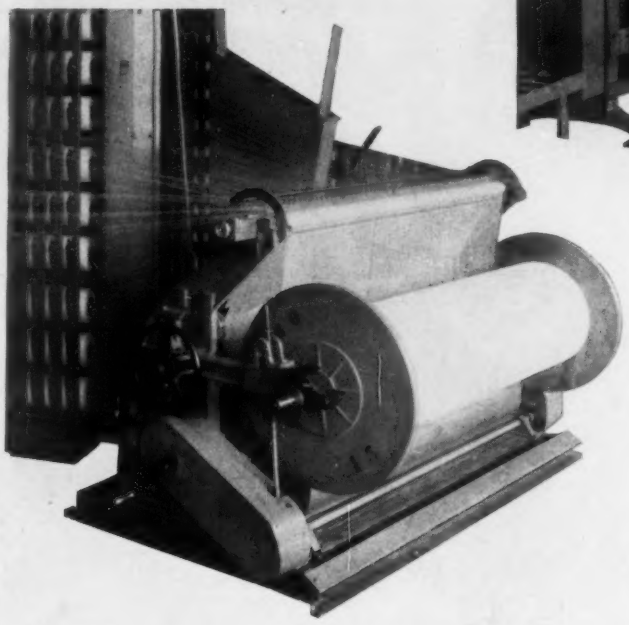
E. C. LITTLE has become overseer of carding at the Clinton Cotton Mills, succeeding M. L. King, resigned.

EDWARD C. BAIRD is now in charge of the Charlotte office of E. H. Jacobs & Co., succeeding J. H. Chadbourne, who has returned to the Danielson, Conn., headquarters to become general manager of the company.

C. W. WILBANKS is now overseer of spinning, spooling and warping at the Henrietta Mills, Henrietta, N. C. He was formerly connected with the Cliffside Mills, Cliffside, N. C.

A WINNING COMBINATION





AUTOMATIC SPOOLER
HIGH SPEED WARPER

Spool and warp yarn at 1200 and 500 yards per minute, respectively, and actually improve the quality of the warps. Low and uniform tension and "Every Knot a Weaver's Knot" will automatically increase your production.

On February 1, 1928—61 representative Cotton Mills were using or had on order:

254 Automatic Spoolers
198 High Speed Warpers

This equipment will improve conditions in your mill

BARBER-COLMAN COMPANY

GENERAL OFFICES AND PLANT
ROCKFORD, ILL., U. S. A.

FRAMINGHAM, MASS. GREENVILLE, S. C.

Of Course This Shouldn't Happen in Your Boiler Room—But Does it?

U S PRODUCTS

(For the Spinning Room)

Warp Bobbins,
Warp Filling Wind Bobbins,
Filling Bobbins of all kinds.
A. L. Bobbins or Quills, oiled, shellaced;—or enameled in our own Enameling Plant,

Undercleaner and Scavenger Rolls,

Speeder Bobbins and Skewers.

Selling Agents for

APCO-MOSSBERG CORP.

All-Steel Loom Beam Heads
All-Steel Section Beam Heads
All-Steel Adjustable Beam Heads

MANY a spinner and carder will smile as this picture recalls to his mind how he got rid of a lot of bobbins that didn't measure up—then he ordered some more.

Operators can't produce good work on bobbins that run out of true, that are off-size, poorly finished, or otherwise defective, and their natural action when they strike such a bobbin is to heave it in the trash can.

They don't have to destroy many before your cost per usable bobbin has risen far above the price you would have to pay in the first place to get bobbins of guaranteed quality. From this angle alone, it pays to buy good bobbins, not to mention the waste in material and time you avoid.

First cost by no means tells the story. In the long run it always costs less to buy U S guaranteed bobbins. Often the first cost is no higher.

U S bobbins represent a value for the money. We operate six factories continuously on orders for mills who have found this to be a fact. Write, wire or phone your order.

U S BOBBIN & SHUTTLE CO.

PROVIDENCE, R. I.

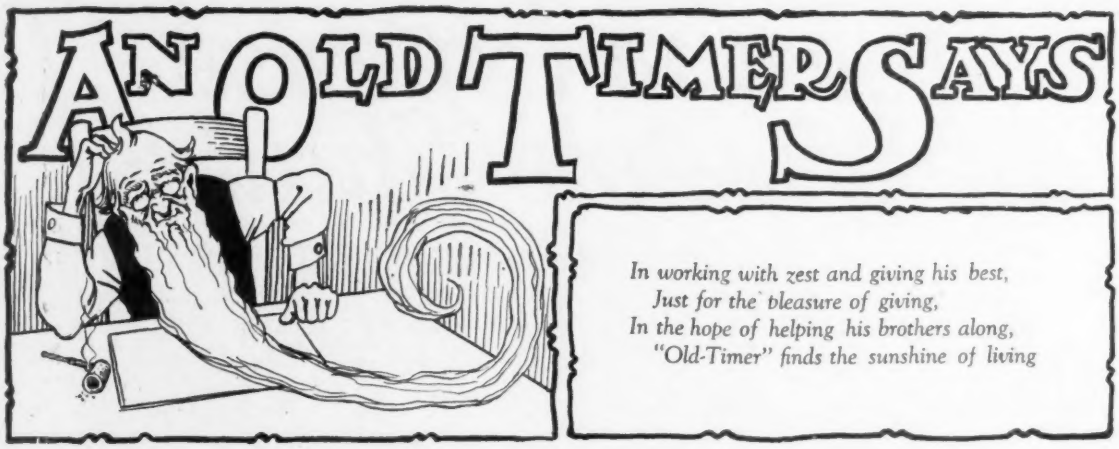
GREENVILLE, S. C.

Branch Offices:

High Point, N. C. **Philadelphia, Pa.** **Atlanta, Ga.**

BUILDERS OF BETTER BOBBINS, SPOOLS, AND SHUTTLES

U S salesmen are specialists on bobbins, spools, and shuttles. Order direct from U S for real helpful and understanding service


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

A Tribute from Old-Timer.

Lost! Something that is dearer to a human being than all the gold in the world; something that can never be replaced; something that although many men secure more than their share of this world's goods, they do not acquire their share of what I have lost—

A True Friend.

To say that I was shocked when the message came of L. L. Arnold's death on April 2nd, would be a misstatement, because I have known of his declining health for several years—and to say I was grieved, only partially states my true feelings. Having worked for him (as contributor to the technical pages of COTTON and the "Old Timer" page) longer probably than anyone else who is not directly connected with the publication. I have learned to respect him for his sound judgment, his farsightedness, and especially for his fairness—his willingness to give and take in all matters.

He absolutely had more determination, more dogged tenacity to stick to his task, than any human being I have ever known. He worked and worked hard when the average man would have given up—my goodness, what a cotton mill superintendent he would have made!

How could anyone not learn to respect such a man?

Several years ago when the Bureau of Standards was just beginning to function (Dr. Stratton, now of M. I. T., was the director), I was invited to talk to a meeting of "big men" at the Bureau on a certain phase of textile work. I went to Washington and ran into Mr. Arnold at the hotel. Seeing that I was nervous over my forthcoming appearance, he informed me that he was going to that very meeting and we would go along together. To make a long story short, he took charge of me, encouraged me, quieted me down to where I was not so nervous, and although I was pretty severely criticized in my talk for some statements I made, he stuck to me by getting up and explaining several things that I had failed to make clear. Then afterwards I found out that he had had no idea of attending that meeting at all. Say, brother, could you help loving a man like that?

Oh! yes, we had our differences—he called me down pretty hard sometimes, and I would get pretty mad. In fact, another firm is now publishing some material that he turned down five years ago, but his wise old head and his loving disposition—his ability to say "No" and make you like it—always caused me to feel ashamed of myself after one of our tilts, and love him all the more.

Boys, we have lost a true friend and a genius in his line; therefore, let us forever reverence his memory.

(Last month "Old-Timer" began telling of his trip to a big city. We had to interrupt him because of lack of space, but are continuing his report in this number. He was back at his hotel when we stopped him last month, and now he picks up the story at that point.—The Editor.)

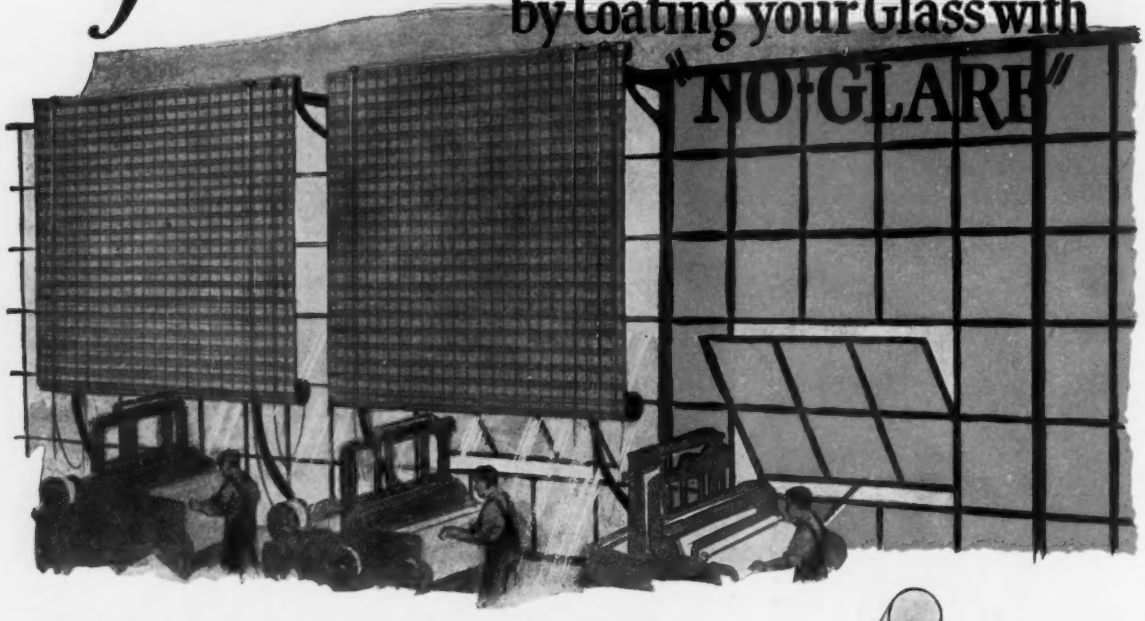
I'm going to take a street car. Four cents more mister. What, nine cents for a street car ticket? Sure, that's what it is, pardner, but I'll sell you three for a quarter. Well, I don't know that I'll ride the street car any more in this town, but I'll buy a quarter's worth to save that two cents. They can't beat me that way. . . That motorman has half-soled his shoes himself—no shoe shop would do a job like that—and the seat of his pants is so shiny I'll bet he would slide if he sat down on sandpaper.

Looks like he would make a good weaver, and I know he would make a better living. Why in the dickens do so many people want to stay in the cities and live so hard when they could be making a good living in the mill and save some money too, if they would try? Goodness, if only some of our operatives could see how these people live. I mean the working people. It usually takes most of what they earn for living quarters, and they are packed into little apartments that are not large enough for the cat. The houses in our mill villages are mansions beside these boxes where thousands upon thousands of people live.

Gosh, I must be getting into Egypt or Germany or some place. These people on the street are talking some kind of pidgen English or something, and they all look like

Save the Expense of Window Shades!

by Coating your Glass with "NO-GLARE"



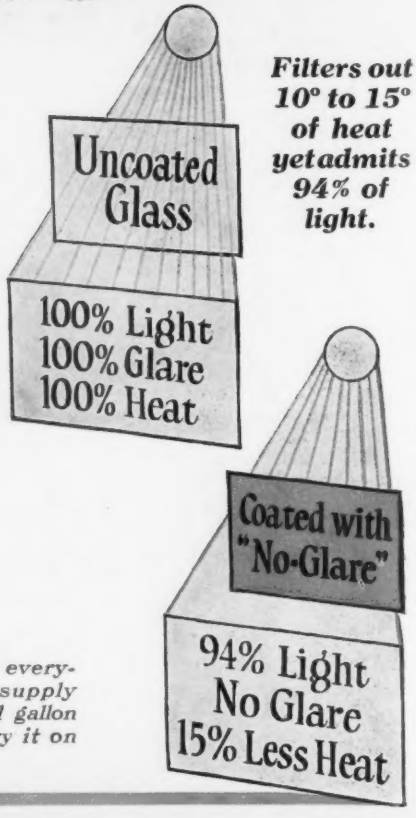
SKYCO *No-Glare* has all the advantages of window shades and blinds and none of the disadvantages. *No-Glare* is a sky-blue liquid that when painted or sprayed on the window forms a translucent film that *filters the sunlight*, admitting 94% of light but eliminating the glare and from 10° to 15° of the heat. Thus you get a *diffused* light that is ideal, cool and restful.

The use of *No-Glare* eliminates the expensive installation and maintenance of window shades and saves the time spent in adjusting the shades two or three times a day to meet the changing light conditions.

Goes on OUTSIDE of Glass—yet rain or weather conditions do not effect SKYCO No-Glare. Neither will it rub, or flake off. Yet you can remove it easily with warm water and a brush. *Just as effective if applied on inside of glass.*

Very economical—costs less than ½¢ per square foot of glass coated. One application lasts through the sun-glare season.

THE SKYBRYTE COMPANY
1190 HANNA BUILDING, CLEVELAND, O. *Chicago Branch: 104 So. Michigan Ave.*



Filters out 10° to 15° of heat yet admits 94% of light.

SKYCO No Glare

Used by textile mills everywhere. Sold by mill supply houses. Order a trial gallon today at $3.50 and try it on a "glary" window.

kinfolks. I'm sure going to get out of this place. I might get sick or something and I couldn't tell them about it.

Negro riding a bicycle with a dog sitting up behind him. The dog has his front feet on the negro's back so he can hold on.

Haven't seen many beggars. . . And I still haven't seen a soul I know.

Every show I have looked into is just full of people. Goodness, if all these people were spinning and weaving! Shows, shows and more shows. Where does all the money come from? Here comes the crowd out of a burlesque. Old men, crippled men, just a few painted women, a smattering of negroes. There comes an old woman. Looks like she has seen a hard life. Young fellows, yes oodles of them, but so many old gray and bald-headed men coming out of a leg show. That fellow looks like he weighs 250 pounds. Wonder if he thinks the girls like him?

Looks like stopping time:
Streets full of people.
Busses full of people.
Street cars full of people.
Autos full of people.
Everybody in a hurry.
Ladies' Footwear, $18.00. Gosh!

Ladies' Dresses, $150. Ladies' Coats, $250 and up. Sure is a good thing I haven't but one wife.

Cab Fare, 10 Cents. Cheap enough.

Now, there is a window that looks good to me. All white goods. I'll go over.

Pillow Cases, 15 cents and 25 cents. Muslin, 14 cents a yard. Toweling, 15 cents a yard. Cretonne, 19 cents a yard. Bloomers, 39 cents. Princess Slips, 59 cents. All cheap enough, of course, because made in a cotton mill. What's the matter with the textile business anyway? Ladies' Dresses, $14.00. Ladies' Dresses, $16.50. Ladies' Dresses, $22.50. Look pretty good, too. Now, I could afford another wife.

First one-way street I've seen.

A Sign: Free Dental Work, Eye, Ear and Nose Clinic. Not such a bad town after all, but I haven't got anything the matter with my eyes, ears or nose, and I can't even get up a toothache. But I stood and looked at that sign a long time.

Ladies' Hats, $1.95. Where's my wife?

I'm lost, newsboys are most courteous about giving instructions. And I'm learning how to step lively when crossing streets.

A Sign: Trade-In Watch Shop. Thought I would go in, but my nerve failed me.

There! The lights flashed. Now I know it's stopping time!

Back to my hotel. Number 919, please. Doggone, look at the mail that clerk is handing me with my room key. I knew they would find out Old Timer was here. Hm, a card, "American Wholesale Corporation, Wholesalers of General Merchandise". Another, "John E. Hearst & Co., Ladies' & Children's Ready-to-Wear". That fellow slipped. My kids are all men and women now. Another card, "Daniel Miller Company, Dry Goods, Notion, Draperies, Etc.", and several others. Well, I guess these birds up here are all right after all; they are really on the job. There is one card that calls special attention to the Remnants and Short Lengths Department. Now, if I just had time I would drop around to see those people, because, you know, cotton mills *sometimes* make a few shorts and remnants.

Negro waiters and white waiters working in the same dining room. They need a Ben Tillman of South Carolina up here.

Gosh! If somebody stumps his toe these big city papers put it across the front page in box car letters. You get a paper for three cents, but you have read all the news before the man can give you your change. It's all on the front page.

Two boys sitting on the back end of a dray eating a cocoanut. They are having a time.

Two banks with signs "6 per cent on Deposits". They must need the money.

A steam calliope advertising a picture show.

Left my hat in my room and am walking around in the lobby of the hotel, just looking. There is a dance on in the hotel and the young folks are beginning to come in. Say, mister, my friend is upstairs dressing for the dance and has discovered he left his shirt studs at home. Can you fix him up? I call a bell boy and he says he knows where he can find a man who works in a store. The man thanks him, gives him a dollar and out he goes to get the buttons.

What in the dickens are those two fellows looking at me so closely for? Here they come. . . Say, captain, we want to put in a private long distance call. Sure, come right this way, there is the private booth. . . . Doggone, I'm going right up and get my hat before some guy wants me to carry his grip or something.

On the elevator. Elevator Boy: "Floors, please". I call out "Nine, please", and the guy standing next to me pipes out, "Nine, please". His thinker must not be working.

Noon time. Negro workmen sitting in the street where they have been working, eating their lunch. One gives another a part of his lunch. They have small tin buckets of coffee. One has a thermos bottle.

A traffic cop humming a tune. A store that handles nothing but neckties. Gosh! they sure got the ties.

"Smoking Pipes, $7.00". Wonder if they smoke any better than Old Timer's old cob?

A machine that takes your picture automatically when you sit down in front of it—of course you must drop in a quarter. In a few minutes your picture drops out of the slot. Some machine, but it can't beat a tying-in machine, a speeder, or a loom, or many other machines in the mill.

It's a pretty sunshiny day and store windows are displaying Spring styles. Rather early. We had snow in good old Dixie the latter part of March last year.

Ouch! When my pipe gets as strong as that fellow's I either throw it away or give it a good cleaning. Don't guess that was one of those $7.00 ones he was smoking.

A well dressed man with a very loud green velour hat on. Guess he thinks it looks well. On second thought, it does look pretty nifty, but I don't want one. It wouldn't suit my beard.

I heard a man say South Carolina, but he was gone before I could catch any more. Wonder if he is from Dixie. He didn't speak—but maybe he didn't see me.

Marks of Understanding

Progress in business, as in any other activity, is the natural expression of *Understanding*.

Better business is the result of *knowing* human and material conditions—it's the mark of facts and figures. Larger profit is the mark of foresight and control. Loss and waste mark avoidable incidents—or accidents. While the sincere desire of American business to *serve* efficiently and well is the most enlightening mark of all—the mark of *human understanding*.

"Understanding" Business is the mark of Modern Accountancy. Exact, well defined and clearly defining, its application is the check mark of modern progress.

ERNST & ERNST

ACCOUNTANTS AND AUDITORS—SYSTEM SERVICE

NEW YORK	WASHINGTON	DETROIT	CLEVELAND	CINCINNATI	ST. LOUIS	CHICAGO	DALLAS
PHILADELPHIA	BUFFALO	GRAND RAPIDS	AKRON	DAYTON	KANSAS CITY	MILWAUKEE	FORT WORTH
BOSTON	ROCHESTER	KALAMAZOO	CANTON	LOUISVILLE	OMAHA	MINNEAPOLIS	HOUSTON
PROVIDENCE	PITTSBURGH	ATLANTA	COLUMBUS	HUNTINGTON	MEMPHIS	ST. PAUL	SAN ANTONIO
BALTIMORE	WHEELING	MIAMI	YOUNGSTOWN	NEW ORLEANS	DAVENPORT	INDIANAPOLIS	WACO
RICHMOND	ERIE	TAMPA	TOLEDO	JACKSON	DENVER	FORT WAYNE	SAN FRANCISCO
WINSTON-SALEM							LOS ANGELES

ALL KINDS OF
RUBBER COVERED ROLLS
Stowe & Woodward Company

Newton Upper Falls, Mass., U. S. A.

STODGHILL & COMPANY

510 Stewart Ave., S. W., Atlanta, Ga.

"The Size That Satisfies"

STODGHILL & COMPANY bbl. No. SIZING COMP'D GROSS 585 TARE 70 NET 515 ATLANTA, GA.

Sizing Compound "V" — TALLOW, GLYCERINE, GUMS, DEXTRINE, PRESERVATIVE, WATER

Contains no Chlorides, no Mineral Salts, and no Mineral Oil.

Sizing gums and weighting gums. . . . Our prices are right for the quality of products.

STODGHILL & COMPANY bbl. No. EMULSO TALLOW GROSS 550 TARE 60 NET 490 ATLANTA, GA.

Emulso Tallow — TALLOW, WATER

The perfectly emulsified product. Contains no Gums, Acids or Alkali.

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Answers to Questions on Turkish Toweling.

EDITOR COTTON:

You published in the March issue a question about weaving the pile warp in a Turkish towel without size; also asking about the numbers usually used in this beam.

In my opinion, it is not practical to weave the pile warp beam without size, as the warp will roll together and cause many drawbacks in the towel. In order to make size for this warp we have a size kettle that holds 160 gallons of water. We use 30 pounds of starch and seven pounds of compound, which is a little less than half the sizing we give the bottom warp; then after the goods are woven we find we have a good soft toweling.

The most common yarn used on this pile beam is 16s, but in some cases, the buyer may want a larger towel with a lighter weight, and you can use 20s.

M. K. (GA.)

EDITOR COTTON:

Answering the questions about weaving the pile beam in Turkish towels, which you published in the March issue, it is possible, although not practicable, to weave the pile beam without giving the yarn a light size. The purpose of this sizing is to lay the fibers and to a certain extent strengthen the yarn, thereby making a better weaving proposition. As to the numbers of yarn most commonly used, I would say 16s to 20s. D. F. (ALA.)

Using Special Hands for Cleaning in Spinning.

EDITOR COTTON:

In your April issue on page 589, "B. T. (Ala.)" asked for methods of cleaning spinning frames, as to whether special hands are used for this purpose, and also about how often each kind of cleaning is done.

In replying, I will state that at our mill we have had the multiple system in operation about 16 months, and while conditions under this system are somewhat different to those used under regular practice, perhaps some of my methods will be of interest. In connection with the multiple system, I will say that I am well pleased with it and would not consider changing back to the old system if given my choice.

Our spinners, who ran 12 sides on 30s warp formerly, now run 28 sides and a girl cleans 30 sides. On 40s filling our 12-side spinners now run 24 sides and the cleaners take care of 34 sides.

The spinners do no cleaning whatsoever. Their duties are to creel-in roving, piece up ends and pull waste off scavenger rolls. We clean half our bottom steel rolls each week, getting over them all every two weeks. All top rolls are cleaned weekly; front top rolls three times weekly; back guides daily; thread boards six times daily on filling and seven times daily on warp. We clean the top clearers three times a day. On warp we clean the roving creels three times weekly; on filling, twice weekly.

We did not experience any great difficulty in putting in the multiple system. However, it does require some serious thought. The main thing is in educating the help to it. We feel that we are getting a little better quality, and our production has increased some. We used all of our best 12-sides spinners to spin, and the 8 and 10-side spinners to clean. We find that this works out very nicely. Of course our work was made a great deal easier by first going to the card room and seeing that everything was properly adjusted there, and getting all of our machinery in first-class mechanical condition before tackling the system.

If any reader desires further information about our multiple system, I shall be glad to answer any questions.

CONTRIBUTOR NO. 4012.

EDITOR COTTON:

You published in April COTTON a question from "B. T. (Ala.)" asking some questions as to methods of cleaning spinning frames; whether special hands are used for this work, and if so, how many frames the cleaning hands look after. I am glad to give you the following information about our system. We have been using this system for two and one half years, and find that while a good grade of cotton and good carding is essential, it proves very satisfactory if these are secured.

On 29s warp our spinners run 18 and 20 sides with an average of 264 spindles per frame, and rest on an average of ten minutes per hour. Before adopting this system these same spinners ran 10 and 12 sides and did all the cleaning. The spinners now do no cleaning at all, which of course means an increase of six and eight sides with this system. On 41s filling they run 14 and 18 sides with the same number of spindles as warp.

As to cleaners: on filling, one hand cleans 20 frames; cleaning guides once every hour, back guides once a day, brushes rails four times a day, top clearers twice a day, top rolls once a week with an average of ten frames each day, steel rolls every two weeks, stands, spindles and greenboards once a week and top and bottom roving once a week.

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Lumpkin	Americus
Cuthbert	Cobb
Dawson	Flintside
Shellman	Leslie
Sasser	DeSoto
Fort Gaines	Lenox
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CITIZENS of Southwest Georgia are capitalizing the natural elements of growth and prosperity that are characteristic of the section, proceeding rationally with those resources which supply the community income. The goal of Southwest Georgia is profitable farm production 12 months of the year—and it is steadily being realized through attention to improved production, by proper grading and by efforts toward better market methods.

The new vision, capital and population resulting from these practical steps are also bringing to life successful small industries based upon the great variety of clays, woods and other natural products of Southwest Georgia. This area is a particularly advantageous setting for knitting and cutting establishments because of its attractive living conditions, Anglo-Saxon labor supply and proximity to yarn and fabric sources. The power service in the section served by our lines is adequate to meet any development that may come.

Columbus Electric & Power Company

STONE & WEBSTER, INC.
Executive Managers

SOUTHWEST GEORGIA

Columbus, Ga.

This, as you will note, isn't as much cleaning as is done in the old system, but I consider it good enough for our numbers, and the results are good. We are getting just as good production, if not better, than with the old system. My opinion is, after once getting the help trained, there should be no trouble at all; at least this has been my experience. I have running in my department 140,000 spindles, running approximately 40,000 at night.

CONTRIBUTOR NO. 4013.

Weaving of Selvages.

EDITOR COTTON:

Concerning the questions and answers in re cracked selvages, I offer the following remarks, hoping that the questioner, and others, may derive some benefit from them.

Selvages are very important, in that they give a good or bad appearance to the cloth, and are also very important during the finishing of the fabrics.

Nothing looks more unsightly to a mill man, when in a store buying a piece of cloth to make up into some garment, than to see a bad selvage. It creates a bad impression as to the quality of the goods. Take zephyrs, shirting, chambrays or check fabrics and note the difference a neat selvage makes in comparison to one that is curled or serrated at the extreme edge. Cracks, warp and filling looping, stitching due to carelessness in weaving, often due to mechanical defects in the loom and in the preparation of the warp. This part of the preparation department's duties are often neglected. For instance, to some slasher men, a beam is just a large bobbin to contain such an amount

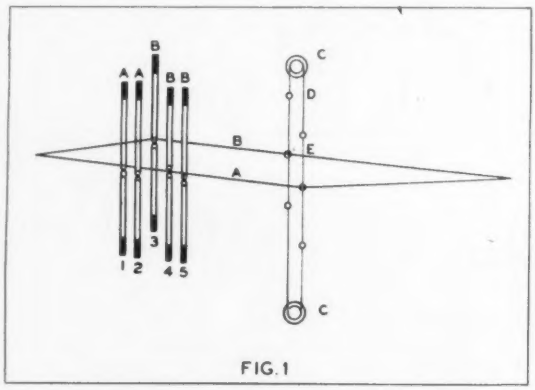

FIG. 1

of warp as noted on the instruction sheet, and provided it will run in the frame, that, in his opinion, is all that is needed. Flanges should be exact and barrels should be true and ought to be trued up in a frame before using; pikes should be fast, and any beam having become warped in the barrel, or in the cast or steel flange, if unreparable, should be scrapped, otherwise, there is bound to be trouble.

What is worse than a crooked flange and what kind of a selvage can any weaving manager expect from yarn that at 25 per cent of its drawing of the beam is at a greater tension than the rest of the warp and then for the remaining 75 per cent is at a less tension.

The selvage is very important to the finisher. In some cases the uneven tension has caused the selvage to roll or curl. When this occurs, printing, dyeing and finishing are done under difficulties, and in some cases it is practically impossible to make a first-class job. How many readers who are finishers, dyers, etc., have had experience with such selvages, and these are faults that perhaps only appear after the designing or bleaching of these fabrics preparatory to dyeing and printing. A finisher is like the manufacturer, he must put the cloth through as little process as possible, to cut down his costs, and he cannot be running cloth twice where once would do, losing money and running the risk of tendering the cloth.

If the selvages are round and tight instead of being flat and tape-like in appearance, they are likely to be cut or torn from the body of the cloth. Sometimes a common weaving fault is to draw-in loose ends into the selvage. These extra ends are often the cause of faulty cloth after finishing, such as in the calender or schreinering process. Selvage ends of ply yarns should be twisted twist and not

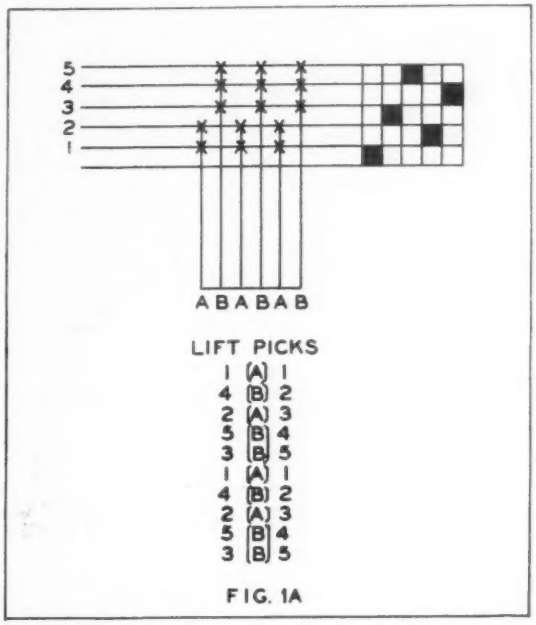

FIG. 1A

spun twist, otherwise, they will stretch 5 or 6 per cent. If the selvage is worked from a selvage motion, there is no difficulty in producing a good edge, as this can be timed independently of the ground weave. The shedding should be timed late to give a good edge.

If worked by a "boat" harness from the ground, and the fault occurs at the offside, turn the tappets one pick sooner or later to change the tension on the weft when the beat-up takes place with the shuttle in the off box. Shedding too soon causes an imperfect selvage.

Sometimes a weaver causes a faulty edge by taking the threads over the eyes of the wrong healds.

Unevenness or cracks are caused by unequal shedding and unequal tension at the beat up. Sheds should be equal, and timed so that the healds cross two inches from the "fell" of the cloth.

If cracks are made after this, then make an end and end lease and see that the back rest is not too low. For example:

Take a Venetian or warp faced cloth, the most common selvage used is the 4 and 4 repp edge, using the "boat"

where the objective is

Permanent Drainage

THE enormous sums spent by mill managements every year in their efforts to obtain permanent drainage in their respective villages is a credit to the textile world. But many of these undertakings have failed as to their permanency—even when such seemingly durable materials as vitrified sewer pipe, cement and concrete were used.

With the introduction of Keystone Galvanized Metal Culverts to this field the problem was not only solved, but offered such economy that has met the favor of all who use them.

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Keystone Culverts, too, are lowest in first cost, easily and rapidly installed, economically transported, and less expensive than other types of culverts in every respect.

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Carolina Metal Culvert Co.

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harness and drawing one section of the threads over the eyes of healds 1, 2, 4, and 7. The other section is drawn over eyes of healds 3, 5, 6, and 8. This causes one section to remain lifted for 4 picks, while the other section is down on the 4 following picks. The sections are reversed, giving a 4 and 4 edge. Two or more catch ends are drawn through the healds or worked from other "boat" harness weaving a 2 and 2 edge.

Figure 1 and draft and plan is an arrangement to produce a simple selvage for sateens.

The bobbins or small pulleys *C* in Fig. 1, are mounted behind the healds, the tapes *D* are passed over the bobbins and fixed by means of buckles to harness *E*. The selvage ends *A* and *B* are drawn through the eyes of the harness. Each thread *A* is then drawn through the top loops of healds 3, 4, and 5. It being understood that the threads are *not drawn* through the *eyes* of the healds. Each thread *B*

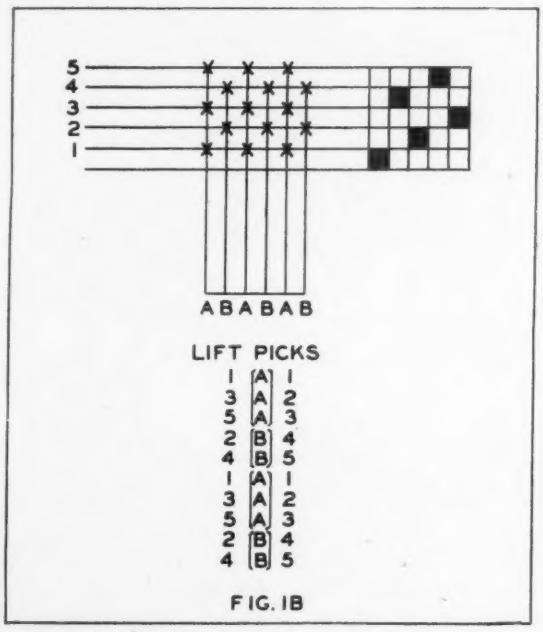


FIG. 1B

is drawn through the top loops of healds 1 and 2. They are then dented in the reed in twos.

When weaving the ordinary sateen which lifts 1, 4, 2, 5, 3, the action of the healds and harness is as in Fig. 1A.

Heald 1 is lifted and causes all the threads *A* to lift on pick 1; heald 4 is lifted and all the threads *B* lift on pick No. 2; heald 2 is lifted and all the threads *A* lift on pick No. 3; heald 5 is lifted and all the threads *B* lift on pick No. 4; heald 3 is lifted and all the threads *B* lift on pick No. 5. Thus the weave of the selvage threads for the 5 picks has been 3 picks plain, and then the next two picks in the same shed, this being almost a plain edge, and it is sometimes termed a plain edge for the sateen.

If a worsted selvage is made and is required to form a repp, the drafting of the selvage through the healds can be so arranged to produce a 3 and 2 edge as in Fig. 1B. Arrange as follows: The threads *A* are drawn through the loops of healds 1, 3 and 5, and the threads *B* through the loops of healds 2 and 4. Taking the reverse sateen which lifts 1, 3, 5, 2, 4, the action of the healds on pick No. 1 lifts all the *A* threads, on pick No. 2 the *A* threads, and on pick No. 3 the *A* threads; while on picks 4 and 5 the *B* threads are lifted, thus producing a selvage with three picks in one shed and two picks in the next shed.

The object of a selvage is mainly to assist the weaving operation by adding strength to that portion of a warp subject to the greatest strain due to contraction of the width. In many cloths of light construction the selvage ends are of the same counts as the warp yarns and are woven two ends as one to give added strength, sometimes 10 or 12 double ends at each side. Commonly used are yarns of 2-ply, averaging counts equal to the warp; 2 ends as one, or 2-ply averaging counts as two single yarns.

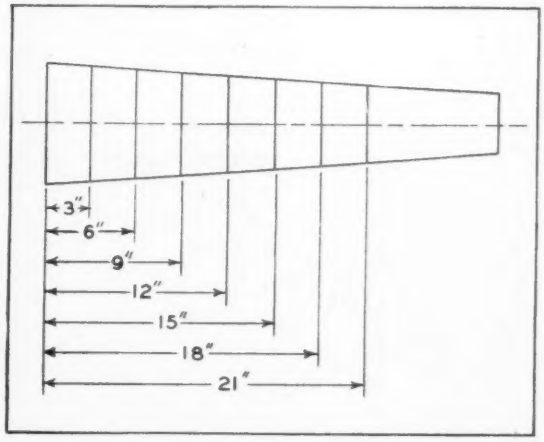
For plains, and a few twills, the selvages are woven as the rest of the cloth, while for some twills and sateens the weave is different. One cause of a faulty selvage is weaving narrow cloths in looms much too broad.

C. W. (CANADA).

Securing a Uniform Tension.

EDITOR COTTON:

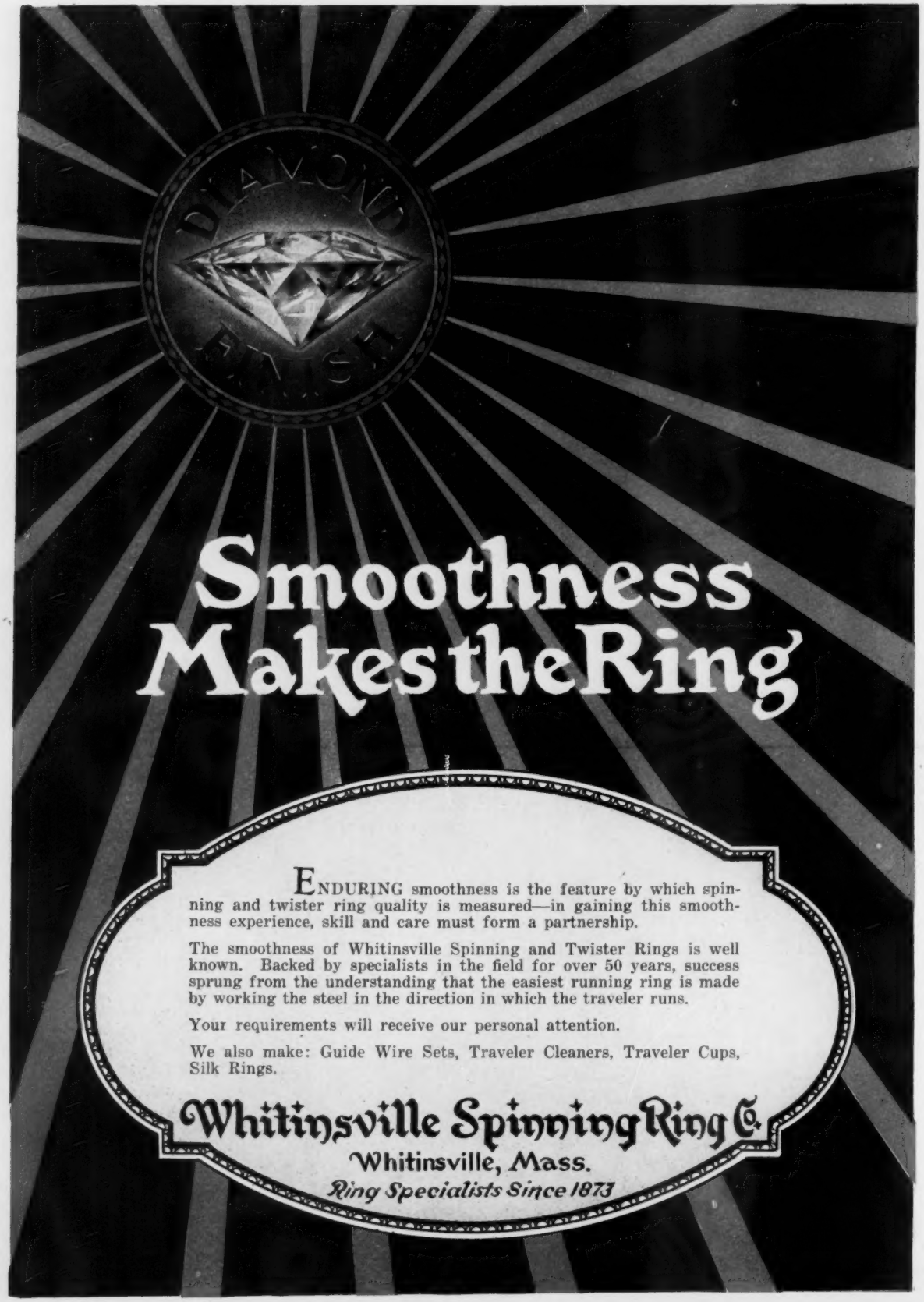
I notice in the December issue of COTTON, on page 153 that "D.W.(N.C)." is having trouble getting uniform tension throughout the doff on his fly frames. I have read the results of investigations with interest. I have found a "kink" that is of great help in this connection. It is not original with me, as I learned it from a gentleman who is now an old mill man, but who worked up through the card room to his present position as general superintendent of several large mills.



In our mill we had the same trouble as "D.W.", and overcame it by lagging the bottom cone with layers of cloth, as shown in the accompanying sketch, whenever the tension became too tight throughout the doff. This trouble is very seldom encountered where a man has new model frames, as the builders have more accurately made the correct curve and on the bottom cone, but on the old frames it is almost universally the case.

As will be understood from the sketch, each strip of cloth placed on the cone overlaps all of those preceding it, and adds three additional inches. Perhaps my drawing does not give the correct taper for every case, but according to this system, each man by a little close study of his particular frames, can work out the correct lagging to apply.

T. S. (S. C.)



Smoothness Makes the Ring

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The smoothness of Whitinsville Spinning and Twister Rings is well known. Backed by specialists in the field for over 50 years, success sprung from the understanding that the easiest running ring is made by working the steel in the direction in which the traveler runs.

Your requirements will receive our personal attention.

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Instructions for Setting No. 17 Warp Stop Motion.

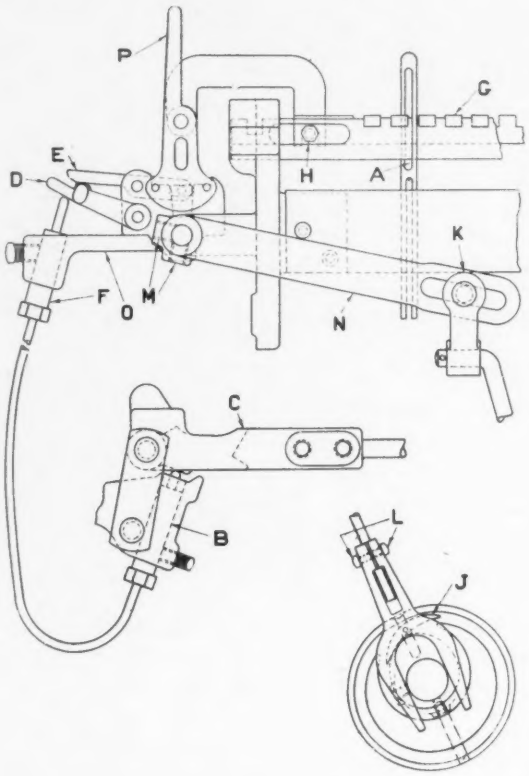
Instructions for setting the No. 17 sliding bar patent warp stop motion are given by the Draper Corporation in a recent issue of *Cotton Chats*. The illustration shown herewith is used for explaining the parts mentioned in the instructions, which are reproduced here.

In setting, it is pointed out, there are two things to remember:

All moving parts are set on the center of their movements.

The knock-off parts are trigger-set—ready to move when tripped—with no lost motion in the connections so that action may be immediate and positive.

The moving parts which are set on the center of their movements include the cam follower *J* and the oscillator cam; the oscillator arm *N;* the feeler bar finger *O*, which controls the movement of the sliding feeler bars; and the sliding bars in relation to the notched feeler bar holder.



The trigger-set knock-off parts are the plunger finger *D* and knock-off *C*, between which and the plungers on either end of the knock-off rod there should be no lost motion.

The instructions given follow:

"Place warp stop motion sufficient distance from back harness to allow for proper shedding.

"Adjust height of warp stop motion so that, when shed is open, no harness will lift drop wires until bottom of slot in wire touches under side of feeler bar holder *A*. A small clearance is always desirable here to prevent any lifting strain upon the bar.

"Set the lay in extreme back position with shuttle in right hand box.

"Loosen set screw and push plunger holder *B* and plunger against under side of knock-off *C* until upper side of knock-off is in line with top of knock-off rod end, as shown. Tighten set screw.

"Loosen set screw in feeler bar finger base *O* and press plunger holder *F* and plunger against plunger finger *D* until plunger finger rests against feeler bar finger trips *E*. Do not push plunger back into holder or knock-off will be raised at *C*. Tighten set screw.

"Set oscillator cam so that follower *J* will be at center of motion as shown.

"Set oscillator rod end *K* central with slot in oscillator arm. Through cap screws *L*, adjust rod so that top of oscillator rod end *K* will be in line with bottom of front warp support.

"Loosen set screws *M* in oscillator arm *N* and set sliding bars as follows: Have teeth *G* of sliding feeler bar central with notches in feeler bar holder; that is, teeth should completely close notches. Have studs *H* central in slots of feeler bar holder, with feeler bar fingers *P* vertical.

"Tighten set screws *M*, being careful to preserve the settings as made."

When these adjustments are made, it is stated, the the travel of teeth of the sliding feeler bar should be the same on each side of the notches in the feeler bar holder.

With the new brake of the company, it is declared, and the foregoing setting of the warp stop motion, the loom will always stop with the shuttle in the left-hand box when a warp thread breaks.

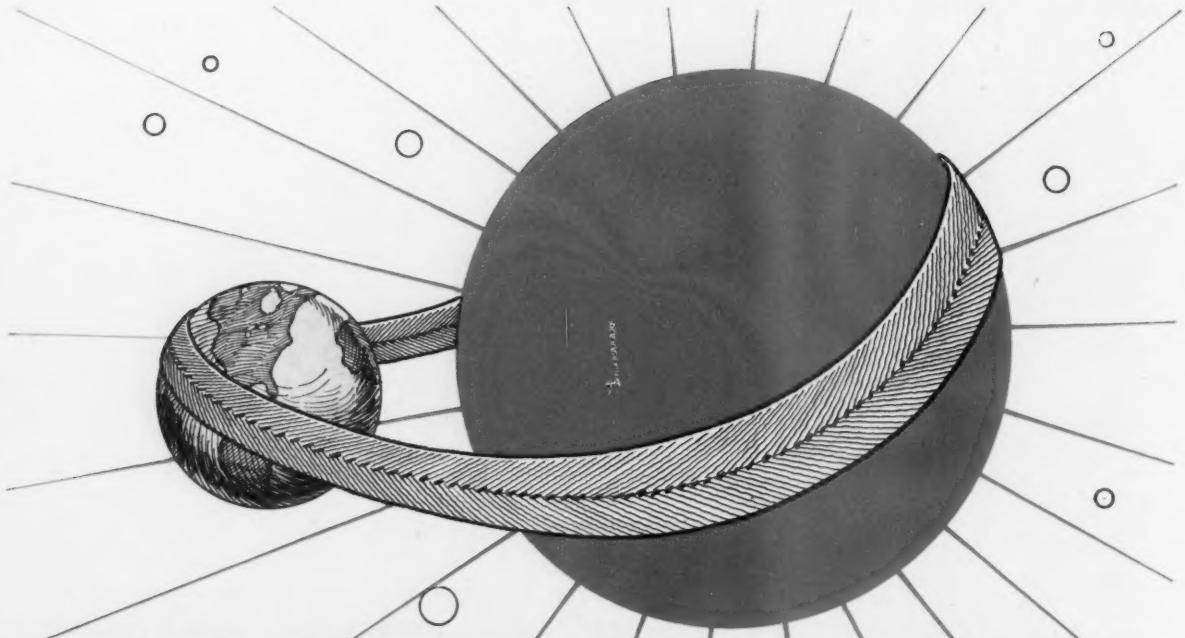
Cork Rolls.

EDITOR COTTON:

I see in the September number of COTTON where "Contributor No. 4362" states that my June letter was far from satisfactory to him. In the third paragraph he states: "In the same paragraph he makes a foolish statement by saying that the terms 'over drafting' and 'excessive drafting' have got me twisted, which of course is mere guess work and haphazard judgment."

Let's see if the foregoing is guess work. First, let us consider the drawing frame equipped with metallic rolls, and we will assume that the strand fed in is so bulky that the top roll is supported on the strands instead of riding on the collars of the fluted top rolls. This is a pure case of over drafting. Second, if the total inches of drafting throughout any cotton mill exceeds the doubling of laps, this is a pure case of excessive drafting. (A reference to the terms "Excess" and "Over" in any standard dictionary should easily settle this question in the minds of the two contributors.—Editor.)

Now, let us next turn to page 1249 of the October issue of COTTON and read the splendid article written by "Contributor 738." He states in the second paragraph "I have had the pleasure of trying cork rolls; in fact, I have had an opportunity to try all the new things as they come out, but as yet, I have never seen anything to beat leather in the long run. Of course, neither I, nor any other man, can tell 'Wash' whether he gets the right service or not from his rolls." Please notice the fairness of "Contributor No. 738" in his statements in contrast to that of "Contributor No. 4362."



DEPENDABLE

as the sun~*the world over*

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Under strenuous conditions, and in practically every country where textiles are manufactured, these strong long-lived tapes drive various machines in scores of mills. They serve a vast territory upon which the sun never sets.

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Barber Manufacturing Company
Charlotte, N. C.

BARBER
SPINNING AND TWISTING TAPES

Next, let us go back to "Contributor 4362" and read the last paragraph. In this paragraph he states: "I should also like for 'Wash' to take notice of the beginning of the 8th paragraph of W. C. Hames' article, wherein he states 'Leather alone does not provide enough cushion—' Enough cushion, mind you, the essential asset. Where is the cushion effect obtained in cork rolls?" In answer I would say, in the same place as in the leather covered rolls.

In answer to the question of "Contributor No. 4362" concerning the class of work, hank roving, etc., I would like to state that we run about a 1⅛-inch stock. About a 50-hank on the slubbers, 1.40-hank on the intermediates and 4.00-hank on the fine speeders.

In answer to "Contributor No. 738" regarding the condition of the leather rolls before the change, would state that we experienced the most trouble on the single boss rolls. Running such heavy work caused them to roughen and groove. The cork rolls have eliminated both entirely. When these cork rolls are better known you will see very few leather rolls in use. WASH (R. I.)

Preparing Cotton.

EDITOR COTTON:

The writer would like to ask a question, to be discussed in the "How Other Men Manage" department of COTTON. So many of the writers in COTTON harp on the subject of opening up enough cotton at one time to run the mill a week. They say to let it dry out, and I may have said that at some time in the past in some of my contributions to the magazine, but today I am confronted with another idea of what is meant by "drying out." I've always taken it for granted that the reason for opening up cotton ahead of the picker room was to let the fibers straighten themselves as much as they formerly were before they were packed after being ginned.

Now "airing out" sounds different from "drying out" when the humidity is put to it as soon as it gets into the mill. Some begin at the picker room and all of them in the carding, spinning and the spooling, warping, weaving and also the cloth room. I have tested the moisture in cotton just from the bales and could hardly ever get more than 7 to 8 per cent moisture, and the majority of the times not more than 7 per cent, except of course when finding a bale that was water soaked, and that could be easily determined by the opening room hopper feeders and set aside until it was dry enough to mix in.

At the cloth room one always tries to maintain a regain of at least 7 to 8 per cent in the cloth. We are due that much to keep the cloth at its right flexibility and make it lie down smoothly, for cotton grows and matures under a much greater moisture than that. According to the nature of cotton it must maintain its customary moisture, not from a matured standpoint but from the mechanical standpoint on its actions throughout the mechanical processes in every department of the mill until it reaches the cloth room.

There is a great deal of experimenting to find how much moisture there is in the cotton throughout the different departments of the mills, but it has always seemed to me that if the humidifier control shows that there is a regain of what is desired through the different departments one could afford to let nature take its course and grade the numbers so that the cloth would weigh the desired amount at the finish.

I believe in all these different tests in the mills for information, but at the same time, to my mind, one cannot get away from what nature is going to do in spite of tests, so after all, it is better to strike a happy medium and break even at the finish. Where elaborate tests are being made all the time, money is being spent that is often of no material benefit to the mill. Not so very long ago the writer had occasion to have some tests made. Upon going to the laboratory, carrying the material along, he decided upon arriving to let the man in charge of the shop do as he pleased, and played carelessly around, leaving the matter strictly up to him. In substance, his answer was to the effect that that's close enough. Now what did I get? A lick and a promise, so to speak, and was not as well off as I was before I went there. The human element in all cases is to be contended with.

The best way to look at this matter is from a practical standpoint, using all the best judgment in the shop. That means to have as near the right twist, weights, speeds, etc., that by practice have been found to be the best, in order to produce a product that will run well and be right at the different processes. But I'm getting away off the subject. What I want is some information on opening and the drying out of the cotton in the opening room.

T. A. D. (GA.)

Increasing Yarn Breaking Strength.

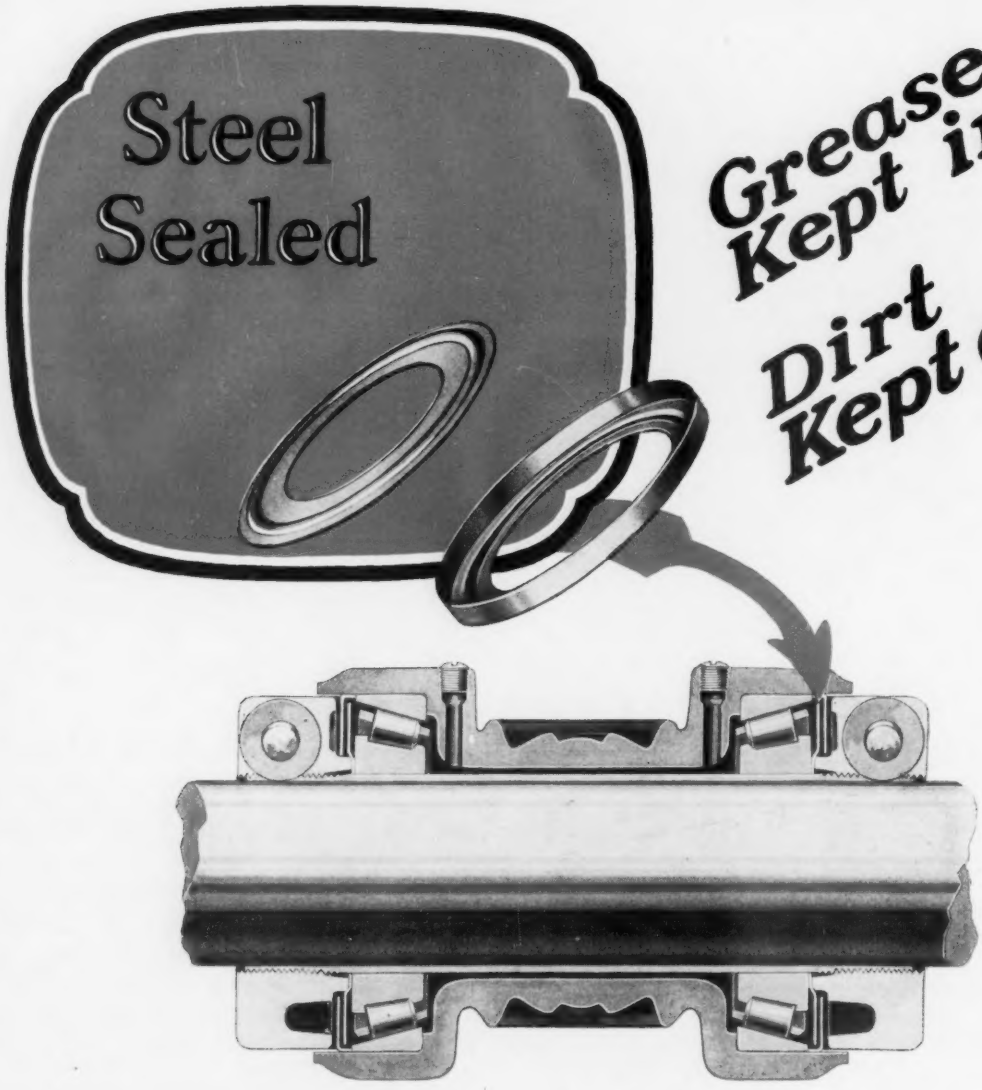
EDITOR COTTON:

"C.E.B.(N.C.)" in his request for information to increase the breaking strength of his yarn, published in the January number of COTTON, does not give us sufficient data, since the draft is by no means the only factor influencing the break. It will be necessary, therefore, to point out some defects that might be in his mill. Let us briefly consider each process of carding.

At the bale breaker, the bales should be thoroughly mixed before feeding, for if the bales are fed separately the cotton from each will go through more or less as a unit. This is undesirable, as the cotton in some bales comes from farms where the soil is poor and the cotton fiber very weak, although up to grade in length. If this unit of yarn from weak cotton is tested the break will be very low, while if it had been mixed in, its effect would hardly be noticed. At least six bales should be opened at one time and cotton from each fed in rotation. A better way is to spread the bale over twenty piles of cotton, using about thirty bales, and then feed each pile to the bale breaker. But this requires a little additional labor.

The stripping roll of the bale breaker should be set close enough to completely open the hard lumps, and the lifting apron should be filled at all times to its capacity, so the vertical opener will receive a steady amount of well fluffed cotton, and will deliver in steady quantity to the openers. The cylinder of the vertical opener should not be run over 800 r.p.m. and its settings should be wide enough to prevent injury to the cotton.

The hoppers of openers and breaker lappers should be filled to more than a certain level at all times, to provide an even feed to the breaker lapper, for variation in laps will cause variation in yarn and weakens the breaking strength.



The Dodge-Timken grease seal is indestructible. It cannot absorb grease, char and become useless. It is therefore positive insurance against grease leakage and damage to goods in process.

This bearing was designed by engineers who knew the textile operator's problem—it has filled a need and proved its efficiency in many leading mills.

The Dodge-Timken Hanger bearing is rugged and economical. Greasing once every six months is all that is required and this means low maintenance.

We will be glad to send interesting bulletins and complete information upon request.

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ROLLER HANGER BEARING

DODGE MANUFACTURING CORPORATION
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Power Transmission—Material Handling—Special Machinery

The beaters of breaker lappers, of 2-blade, should never run over 1500 r.p.m. and should be set no closer than 3/16-inch. Closer setting will mash the fiber and higher speed will cause too heavy a blow. The beater blades should be sharp to give a clean, quick blow; not rounded, to give a dull, mashing blow. If the beater blades are worn the beater can be turned around, bringing the sharp edges into use. This is a very important point as great injury to the staple can be done here. All picker laps should be kept to standard weight, and all finisher laps should be weighed and allowed only one pound complete variation.

In the card there are so many influences on the breaking strength it is impossible to enumerate them all in a few short paragraphs. The more thorough the work of the cards, and the more short staple that is removed, the greater the breaking strength of the finished yarn. A long draft in any cleaning process gives better cleaning and more even work than a short draft. In most cases it is therefore necessary to increase the production of the card to pass the work through in regular working hours, and although this seems to offset the yarn of long draft, my experience has been otherwise. The explanation is that the increased speed of the doffer takes less of the cotton, passing on the cylinder more rapidly than with slower doffer speed and shorter draft, with the result that each cotton fiber stays for a longer time in the card. At the end of this article I have given the drafts I would try, in the particular mill under discussion, to increase the breaking strength.

The card wire must be in first-class condition. Hard grinding breaks the wire and destroys the elasticity of the foundation, so the wires do not present an even surface to the flats. This makes good carding impossible. Cards should be ground lightly five hours every twenty days. Be sure the grinding rolls are covered with new filleting every fourth card ground. I have found it impossible to rely on the judgment of card grinders to change the filleting, for in the rush of work they at some time use worn filleting and set it "heavy", thus forever damaging to some extent the card clothing. The grinding rolls should be set to barely hiss at the start of grinding when cards are ground often. If the licker-in teeth are hooked or dull, the licker-in should be sent to the shop for new wire. Do not attempt to repair them, as it cannot be done with bucks, files or any other hand tool.

The flats should be lightly ground with the drum grinder every month. The ends of the flats should be clean, lest they be raised from the cylinder. The circular brushes provided for this purpose should always be in good condition.

The setting of the card should be carefully considered for every class of work. With a long draft closer settings can be used than with short draft. Using inch stock, I would suggest the following:

Licker-in to cylinder 7; doffer to cylinder 10; flats to cylinder 10,10,10,9,9; feed plate to licker-in 10; mote knife, top 12; mote knife, bottom, 10; cylinder screen 22,34,68; back top plate, top 29; back top plate, bottom 29; front top plate, bottom 29; other settings standard.

These settings give thorough cleaning and combing out of short staple without damage to the fiber, and can be used even with heavy production.

The speed of cards should never exceed 170 r.p.m. of the cylinder, and the licker-in speed should never exceed 500 r.p.m. A greater speed increases the centrifugal force of the cylinder to such an extent that the card, and especially the flats cannot be set to any certainty, and it also causes too harsh working of the cotton.

Drawing rolls should be set with reference not only to the length of staple, but also to the amount passing through, the draft, and the speed. These latter points are very often not considered at all. Any working of cotton after the cleaning process, and before twisting, decreases its strength, so the usage it gets must be carefully considered. A long staple, a large amount of cotton passing through, large drafts and high speed require longer settings. Front rolls with leather covered top rolls should never be set closer than 3/16-inch over staple in the draw frame, and front rolls with metallic top rolls should never be set closer than 1/4-inch over staple. The closer the setting, considering all other influences, the more positive the drawing and the greater the breaking strength. The mill in question should have two process drawing. With their one process, 57-grain card sliver and 57-grain drawing, I would suggest the following settings, leather covered top rolls:

First to second 1 1/4-inch; second to third 1 7/16-inch; third to fourth 1 11/16-inch, but if the card sliver were changed to 48 grains, as I think would be better, I should try the following:

First to second 1 3/16-inch; second to third 1 3/8-inch; third to fourth 1 5/8-inch. The speed of the front rolls, leather covered top rolls, should never exceed 450 r.p.m. and with metallic top rolls, 350 r.p.m.

On slubbers with leather covered top rolls, the setting should be not less than 3/16-inch over staple in any case. In this mill I should try the following:

First to second 1 3/16-inch; second to third 1 7/16-inch.

Intermediates and jacks almost never have metallic top rolls. With low drafts the front roll can be set 1/8-inch over staple for less than 1 5/16-inch cotton with weighted rolls.

In the mill in question I should try these settings: Intermediate and jacks front to middle 1 1/8-inch; middle to back 1 3/8-inch. These roll settings must be changed, depending on the character of the cotton. Much short staple, wiry cotton, or the presence of an appreciable amount of longer staple would force a change in the settings.

I should set the spinning frame rolls the same as the jacks, if they are leather covered top rolls.

I think the drafts in the mill in question could be altered to advantage, provided speeds could be slightly changed if necessary. Not knowing how many machines in each process there are in the mill, one cannot state definitely what drafts are best. One duty of the superintendent is to get the work through in regular working hours, and if we change the drafts perhaps this will not be possible. I suggest these drafts, however:

	Present Draft	Suggested Draft	Present Product	Suggested Product
Cards	99.77	118.5	57-grain	48-grain
Draw frames	6	5.23	57-grain	55-grain
Slubbers	3.76	3.96	.55-hk	.60-hk
Intermediates	5.09	5.00	1.40-hk	1.50-hk
Roving	5.28	5.33	3.70-hk	4.00-hk
Spinning	10.81	10.00	20s	20s

These drafts allow for good cleaning in the cards, and shorter draft in the spinning, and balance the work in the other processes.

D. P. T. (MASS.)

Rayon Waste.

EDITOR COTTON:

With the advent of rayon entering into the cotton industry, and the enormous amount used each year in the form of warp and filling, it is surprising that more time and thought is not given, by the manufacturers, to the waste problem as it affects rayon.

Waste is a matter few manufacturers want to talk about. They know it is there, and the amount is too high, but will dismiss the subject by holding up their hands, as if to say, "well, what can we do about it?" The result is, the waste goes on.

Let us try to analyze this waste problem and see what we can find.

The first step is the buying of the rayon. The salesmen call with their samples and prices and submit them to the superintendent or buyer. On the judgment of the buyer rests the initial success or failure of the mill to show a profit on the goods when finished and sold. Many buyers are swayed by the talk of the salesman and think that by getting the rayon a few cents under the market price and a little lower grade, they are making a good business deal. Sometimes they succeed, but in the majority of cases the loss is always against the mill, for when the waste and the second quality cloth made is checked against the price paid for the rayon, it will often cost the mill more money than if they paid for the best quality. The percentage of second quality is high, the waste left on the tubes or spools is excessive and the result is a loss for the mill on this order of goods.

We will presume that the yarn has been bought in the form of rayon filling on paper tubes or rayon cops and let us analyze the next place where waste will enter.

When the rayon reaches the mill it should be weighed and checked to see if the tare is correct and then samples of each case taken and sized to see if they are equal to the number of denier that the rayon was bought for.

Many overseers seem to think this a lot of unnecessary trouble or that it does not amount to much, but I know that in the end it pays to check up on these items, as it is in these small places where our waste problem lies. If the tare is not correct it should be reported to the buyer, who then takes it up with the company who sold him the rayon and is generally compensated for it. In sizing the rayon, if we find that rayon that was bought for say 150 denier is running 160 to 170 denier, we have another form of waste. The difference in the number of yards of 1 pound of 150 denier rayon and 160 to 170 denier is quite an amount and in some instances will be enough to weave 1 yard of cloth in the loom. We can readily see that it will pay to check this up and see that we get what we pay for.

Most rayon companies spray their rayon with oil and it is always a question of how much oil should be used so as to keep the rayon in good condition and help in the winding of the cops. The buyer should attend to this part when buying the rayon, so that the mill will know what per cent of oil the rayon contains. Here again, we will find a form of waste, for if 4 or 5 per cent oil is used when one half of 1 per cent would do, we are paying for the difference in the price of oil and rayon, which I believe is a large amount.

The Handling of Rayon Cops.

We will now follow this rayon to the next part of our analysis, the handling of the cops in the weave room, and see what we can find to class as waste. These few words "the handling of rayon cops," do not seem to mean much, but the damage and waste and loss that the mill has to stand for, through the lack of attention on the part of the overseer or second hands in handling these cops in the weave room, is astounding. In our analysis of this part, we will find waste made which should never be allowed and the surprising part of it is that often the overseer and second hand do not consider it of enough importance to give their personal attention to this matter, that costs eight or ten times the price of cotton, but will leave it to the filling man or a small boy to supervise.

It is my contention that every mill should have a system of handling this rayon that would stop unnecessary waste and get the rayon into the cloth and not in the waste box. Boards should be made to hold a certain number of cops, and when given to a weaver, should be checked in a book. When the weaver returns the board the same amount of empty tubes should be on it. In this way a check can be kept on the rayon to see that it is going into the cloth. Weavers should be instructed to return all small pieces that will not weave or any cops that are soft-wound on the tubes, so that the overseer can see how the silk is running. These small pieces and damaged cops that are brought back can be given to a weaver and for a few extra cents, can be woven into cloth even if the cut is of second quality. The difference in price saved between waste and seconds is enormous.

Care should be taken in ordering the rayon tubes to have them of a uniform size so that they will fit the spindle in the shuttle. If the tubes are too small the weaver will twist the cop trying to get it on the spindle, and finding it will not go half way on, they will damage the cop completely, trying to take it off again. On the other hand, if the tubes are too large they will not hold on the spindle and the force of the shuttle striking the picker will break the cop and the result is waste.

Many times the trouble will lie in the winding of the rayon on the tubes, and poor winding is one of the present day conditions the mill has to contend with and is responsible for a large amount of waste that is made on rayon. The rayon companies can help the mill by watching their winding machines, as sometimes, in starting up the cop, the end of the thread lies along the length of the tube, and when it is put into the shuttle it will not weave without breaking. There is lots of room for improvement in the winding of rayon cops.

In examining some of the rayon cops you will find that the filaments are broken or split in various places, this having a tendency to cause the rayon to snap or break as it passes through the eye of the shuttle, and is a great source of annoyance to the weaver as well as a loss in production, due to the loom stopping when the filling breaks.

The shuttle used in weaving rayon cops plays an important part in the successful operation of this filling, for it will be found that it makes quite a difference as to the tension device used in the shuttle. Some of these tensions are rough in places or perhaps a small sharp piece may be protruding so that when the filling passes through the

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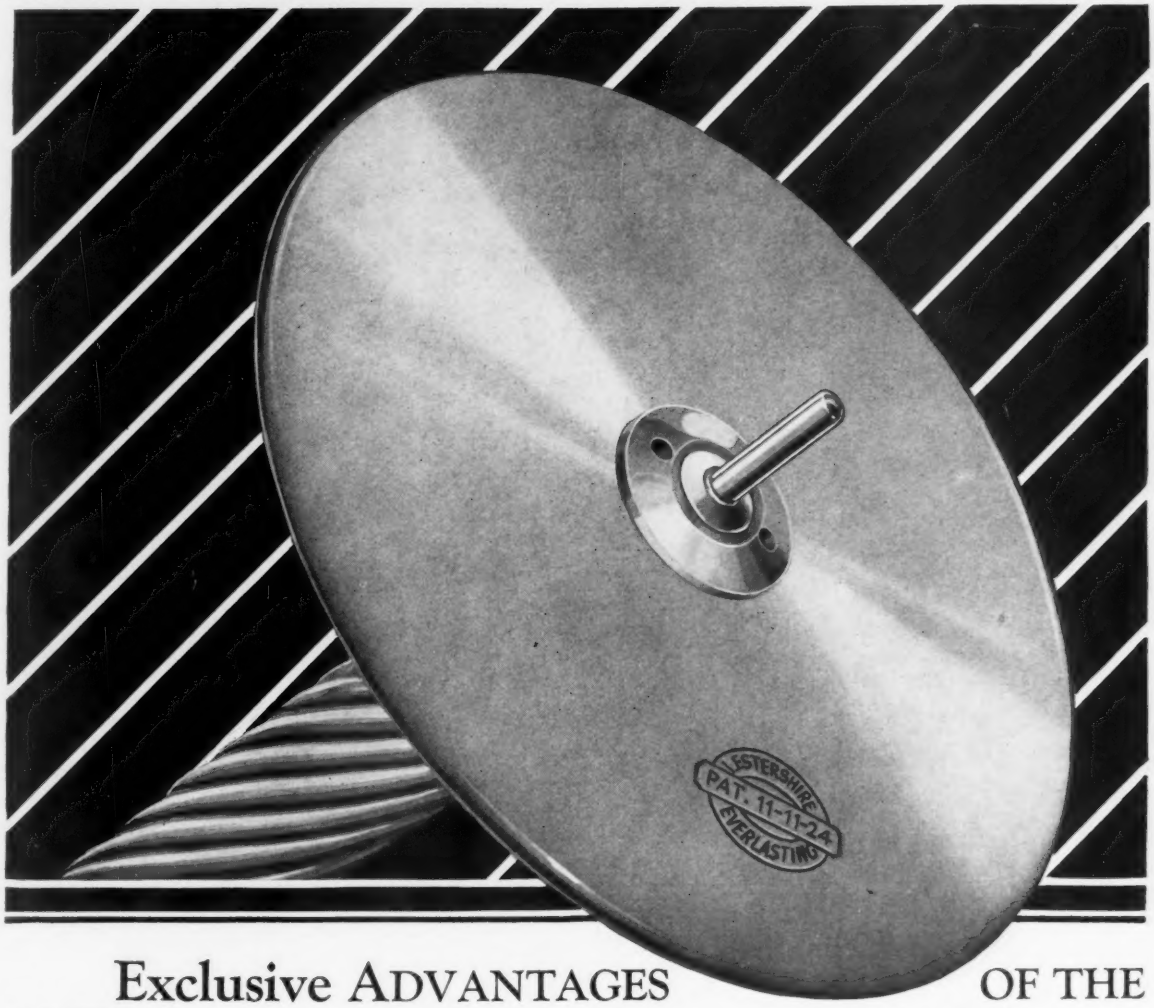

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tension it will catch on these places and either split or break the filling.

Often the weaver will blame the quality of the rayon as the cause of the filling breaking, and the result is a dissatisfied weaver along with much second quality cloth.

The diameter of the cop when wound is another item that should be attended to when purchasing the cops. For instance, a cop of one inch in diameter will last longer in the loom than one of 7/8-inch diameter, but there is more chance of the larger cop breaking or shelling off, while the smaller cop will run out without stopping or breaking. It is my contention, from experience in handling rayon cops, that the best cop for all around efficiency, is that the cop with a 7/8-inch diameter will give the best results.

The shelling off of the rayon from the cop is one of the many difficulties that the mill has to contend with, and generally is the result of poor winding or soft wound cops. Much trouble is often had with the cops breaking in the center or sliding up on the paper tube, making the cop useless or waste if not rewound. The cause of this is also due to poor winding and soft wound cops the same as the shelling off. Excess power in driving the shuttle across helps to make this waste. When a weaver has trouble with cops that are poorly wound he often blames the mill for the quality of the rayon, which may be of the highest grade, and thinks that the mill is trying to put something over on him.

A knot in the rayon or a tube that is damaged on the end, will cause the filling to break and will so irritate the weaver, that he will either break the cop or cut the rayon off so as not to be bothered with it. The breaking of cops will oftentimes be traced to the power of the pick and the overseer and second hand, should make it their duty to see that the pick cams and lug strap are set, so that no excessive power is used in driving the shuttle back and forth. This is a matter that is very often neglected in most every mill using rayon and is the cause of much waste.

Many weavers running Jacquards or looms with figured goods, in their eagerness to catch the pick so as not to make a mispattern, will stop the loom before the cop is finished or leaving about 80 to 100 yards on the tube. This does not look to be much as it lies wound tightly on the tube, but if we lose 80 to 100 yards of filling every time the weaver changes the shuttle so they can catch the pick, we will find that we are losing much rayon filling and turning it into waste. An average case of rayon holds about 3400 cops and this multiplied by 90 yards will give us 396,000 yards of filling left on tubes from one case.

Sometimes the goods require 48 picks to one inch, and in one yard we will have 1728 picks of filling. 1728 divided into 396,000 yards, we have left on the tubes and we find enough yards of rayon to weave 229 yards of cloth; or in other words, we lose enough rayon from every case to weave three cuts of cloth. Think what this means to a mill using 20 to 25 cases of rayon cops a week. Of course we know that we must expect some waste to be made, but why should any overseer allow such waste to go on without taking steps to show the weavers the tremendous losses they are causing to the mill by stopping the loom with so much rayon left on the cop.

Many readers will think this last statement an exaggeration, but there are overseers who handle rayon cops who will know that it is true. Cops that fall on the floor and are soiled and cut so that they cannot be woven, while not so numerous as other forms of waste yet add their little mite to the ever increasing total.

Much of this waste can easily be prevented, and the indifference of the overseer, second hands and weavers to the different things that cause this waste is so evident that it is difficult to understand why such a condition exists. Many loom fixers and weavers make waste that is absolutely unnecessary and seem to do wastefully many things because they like to for purely personal reasons. The average weaver does not take into consideration the price the mills have to pay for rayon cops, and I think it is the duty of the overseer to instruct his weavers so that they will realize what it means to the welfare of the mill when they make waste which could have been avoided.

The human element, as it affects the waste problem in a mill, is a big item, and too much cannot be said or done about it, for it is only in educating his help along these lines that the overseer can successfully run his room and eliminate waste that never should be made.

In the final analysis we have enough places where waste is made so that when totaled together they mean the difference between profit and loss to the mill. Very often the manufacturer wonders why he did not make any money on his goods, and if he would only analyze the situation he would come to the conclusion that one of the things responsible for this loss is that little word called *Waste*.

W. J. (MASS.)

Take Care of What You Have.

EDITOR COTTON:

In his article "Don't Abuse the Cotton", in the November number, "T.R.(N.C.)" brings out some mighty good points. The writer had never realized that there was so much in the points he brought out in this article until he made some changes in the cotton feeding of the old fashioned way of grabbling it up off the floors in the picker room and putting it in the hoppers as it was being conveyed from the opening room and condensed falling on the floors in a heap after coming through the conveyor pipes. In feeding cotton this way (from the floors) the breaker feeders, as they are called, will put all the hopper will hold, and then some, to keep from coming back so often. That means that they pack it down in the hopper all that it will stand. Now they will not come back until the hoppers are very nearly empty. This means, in simple English, that when they are packed hard and full that they are putting out heavy laps. When the hoppers are nearly empty it means light laps. Now this is what I was going through with when using the old system.

When we installed the automatic distributor over the hoppers, and the cotton began to come in so soft from not being condensed by the operator at the hoppers, my weights went out of sight, on the light side, so I had to open up on the delivery of the hoppers to the machines to get it heavy enough, and the cotton being so evenly distributed, there were quite a few other adjustments that had to be made on the machines to take care of this, also on the other lappers. This is where "T.R." comes in; the cotton being so much more open, the beaters could work on the cotton so much better that we cut our speeds on the

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beaters, and found from tests that we were improving by the reduction of the speeds in better quality of yarns.

The next move was to install a vertical cleaner. This we found took out quite a lot of extra matter that the regular beaters previously took out. This gave the beaters a chance to do differently, or take out more, or something else, but anyway, this vertical cleaner loosened up the cotton and it worked better and weighed differently from the old straight run. We had to humor our machines to take care of this performance of the stock, so as not to overwork the cotton. Later on, we put in another vertical cleaner in tandem with this one, and the result was good. This second machine took out one half pound to the first cleaner's one, which made an additional cleaning of 50 per cent before it got to the beaters. Now then the beaters had less to do, so we had to humor this change by some reduction of speeds over what we had previously done, all with good results, according to our tests. It has since proven so.

Getting back a little. We found all kinds of variations from the old system until we got busy and put in all of our time at the pickers and running straight samples through the carding to get the true situation, including the weights and the strengths, and the greater points brought out in this were evener running numbers and lightening on the blows per inch on the pickers. Before this, the yarn was weak.

T. A. D. (GA.)

Another Discussion on End Breakage.

EDITOR COTTON:

In your valuable paper, I have of late been reading several articles on end breakage in the spinning room. I agree with "N. R. (Conn.)" when he states in the January issue: "The only correct solution of this problem is to make careful tests to ascertain the exact status of the conditions under observation." In walking through the spinning room, the spinning appears to be running well, and it is surprising when a test is made, the number of ends down in one hour per thousand spindles. And a large number of unnecessary breakages are caused from minor details that are not followed up.

I read with interest, "A Spinning Room Kink," by "B. D. (R. I.)," in the same issue. I agree with him. It is surprising how the weight-lever is neglected. We all know what these little things cause, but it is the little things in the cotton mill that are neglected.

There are a great many things which result in ends continually breaking down in the ring frame. Ends will break when excessive tension is exerted on the yarn when the breaking strength is below normal. Faulty setting of the gearing causes end breakage. Stretched roving and overdrafted roving will cause weak yarn and excessive end breakages. Bent and shaky spindles cause much soft yarn and end breakage. A more rigid inspection of top rolls will prevent unnecessary end breakage. Worn or grooved thread guides, thread guides not set over the center of the spindle, thread guide set too far back, will give more trouble than when the thread guide is set forward. If the distance is too great or too small, more end breakage results. Excessive vibration is one other cause, and ends will continually break when the steel roll flutes are rough and cut.

There are many more causes of end breakage in the spinning. A more systematic inspection of the frames as to machine conditions and preventing ends breaking unnecessarily is the only successful method to be applied. The overseer, second hand and fixers should make it a practice daily to inquire of the spinners if any end is continually giving them trouble. It is a well known fact that it is the little things that are continually being neglected in the cotton mill. End breakage tests run at regular intervals are the proper means of knowing conditions actually existing in the mill.

R. I. G. (MASS.)

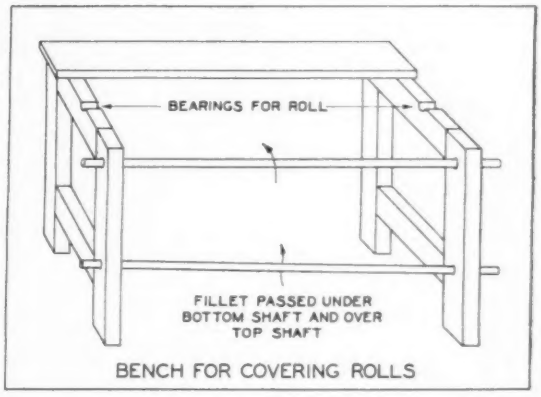
Covering Card Grinding Rolls.

EDITOR COTTON:

Having observed a short time ago a very serious mistake practiced by a man who, by the way, should have known better, in the operation of covering card grinding rolls, I decided to bring this matter before the discussion department, and at the same time try to explain why I deem what I observed a serious mistake.

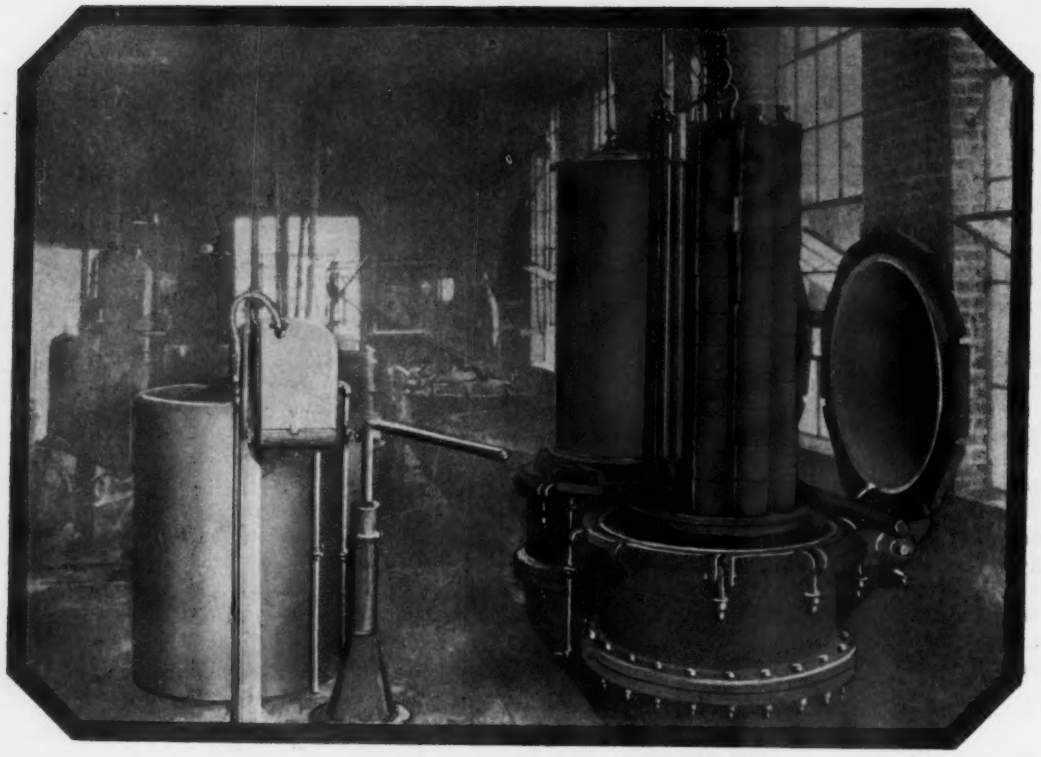
First, I believe all carders realize the evil effect obtained by unbalanced grinding rolls. Well, here is one equally as bad: improper covering of these rolls, both disc and long or dead rolls. Mind you, these grinding instruments are precision tools, and there is no accessory in a mill on which so much depends; still, there are scores of them covered by men who are ignorant of their importance, and also the value of precision.

The mistake in covering rolls which I mentioned in the beginning. was made by a grinder who had never seen any other method—he placed the roll on the doffer grinding brackets, and with the aid of another man who turned the roll, he applied the emery fillet by hand, believing the fillet was perfectly applied to the disc. Now, even if we have no better method than this, surely two men cannot lap the fillet perfectly tight and even so that the whole surface of the emery will come in contact with all the wire fillet on doffers or cylinders.



BENCH FOR COVERING ROLLS

The result of the serious mistake is that the emery on an improperly covered roll, like an unbalanced one, grinds some points of the wire and others are neglected, unless deep setting is resorted to, which means that most of the points are receiving too much abrasion, hence ruin to some is the result. Whereas, to insure perfect grinding, every grain of emery should be in action. In the old days, grinding rolls had to be sent away to be covered. That



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was before the tape fillet was invented, I believe by Dronsfield's of England, and emery rolls of all kinds were covered by cementing the base surface of the roll and dropping the grains of emery on it, after which the roll was revolved against some tool or instrument to produce the best possible true surface.

At the present time, we have the emery fillet made in a convenient form for handling, but still many men neglect the importance of attaining the true surface, thereby bringing the whole into action. However, I am sure a great deal of trouble can be eliminated by providing a simple means similar to the one shown in the accompanying sketch, and by having three persons to help in applying the emery, which means but a few minutes work; namely, one for turning the roll, one for grinding and attaching and a third to keep the tension during lapping. This few minutes work is extremely important in attaining an even surface to grinding rolls, and if such a practice is not adhered to, the specially prepared emery fillet is robbed of more than half of its efficiency as an aid in producing a perfectly sharpened wire point.

Let us bear in mind that emery fillet as it is made today has a wonderful construction, which enables us by taking the fullest advantage offered by it, to acquire a perfectly ground wire fillet on our card clothing, and carders should exercise their ability in securing the best possible means of using this emery to its fullest. Of course, we all realize that grooved emery is the best because—(1) the fillet lasts longer than the plain surface grade; and (2) grinding is done more quickly, and the wire is ground sharper and lasts longer.

Again, we should know that the emery grains are angular shaped and in grooving, the sharp points of the grains are forced into grooves so that as near as possible one grain of emery occupies a line, and the result obtained by this process is a saw-tooth effect, which can be easily seen on close examination. It should be understood that this grooved surface is made for use and the quantity of the grooves determines the grinding efficiency of the fillet.

There is another point I want to mention regarding covering rolls, and that is, that all carders should have a system, in other words, routinize the covering of same, so as to avoid the use of worn-out emery, which will do more damage even than badly covered rolls. We know that when new emery is in contact it causes a brisk "hiss", but worn emery loses this capacity, which leads some grinders to set deeper to get the original "hiss". This is wrong, and only results in "buckling". Broken-out wire, chiefly in the flats, is one result of worn-out emery. So when the "edge" of the fillet is gone, change it, as it is only polishing in that state, and the wire points suffer.

In conclusion, I would like to give one reminder, namely, that as long as grinding rolls are set by ear, so long will smooth emery damage the wire. Make them use their gauges.

D. E. (R. I.)

"The Saco-Lowell Bulletin."

This is the title of a new monthly publication being issued by Saco-Lowell Shops, 147 Milk St., Boston, Mass., in the interest of efficient mill operation. The first issue, for March, contains a discussion of high speed warping, and an article on the development of long draft spinning. Brief articles covering pertinent and current subjects of interest to mill men will be published from time to time.

Controlling Costs and Production.

EDITOR COTTON:

Recently many many mills have been finding it difficult to operate their plants at a profit. Many are moving along in the hope that market conditions will change in such a way that they can show profits of a reasonable character.

What will be the ultimate result if no change comes? Ask any cotton manufacturer about it and the answer he will give you is, that he cannot produce his goods at a cost that will compete with the price the buyers offer for his goods in the selling market. When then is the most logical remedy for this distressing situation? There is only one answer in my mind to this question, and that is to get the maximum of production at the minimum of cost. Suppose we take up the cost part and analyze it. How many mill men today actually know what it is costing them to manufacture their goods? How many even with conditions in such a distressing state are doing anything to find out what it is actually costing them to operate? It is conceivable that many of the present day difficulties which have confronted the manufacturers, have been encountered in the failure to determine what it is costing them to produce their goods. In such a situation the benefits derived from having some kind of a cost system to give practical and accurate information in determining the lowest price they can produce and sell their goods for, would be paramount.

Probably in no other industry is there broader and keener competition than in the cotton textile industry. Therefore, I believe every mill should have a cost system of some sort. It does not have to be an elaborate affair, but one that will give actual and practical facts as to what each room or each process is costing them. In this way many leaks will be found, and in these small leaks, when added together throughout the different processes in the mill, will be found the excess cost that is slowly but surely dragging the mills to bankruptcy. It will cost the mill a few dollars more each week to install a cost system, but I feel sure that the knowledge and information that they will receive from it will well repay the mill a dozen times over for the small amount required to maintain it.

Many mill men look upon the cost system as red tape or theory and not worth the time to study it. Yet, it is not possible for any mill man to draw a clear line of division between practice and theory, for the motives that cause the practical side are first derived from theoretical ideas. Therefore, I think that this admixture of motives held by some mill men against the cost system explains many of the apparent inconsistencies of the textile mills that are steadily losing money each year.

Suppose now that we look at the production problem. What is the attitude of the mill man towards this problem? Does he consider it begins and ends with the taking off of so many pounds of work from the different machines each week. I wonder what the average executive would give as his opinion of this vital question. The peculiar feature of this question is that there are so many answers to it, that if you were to submit it to different mill men for an opinion each one would look at it from different angles.

I could make a list of a dozen or more causes for this loss in production, which were I to tell them would earn for me that added distinction of being called a chronic fault finder. But nevertheless, I will undertake a discussion of

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the entire question because I have noticed that it has been provoking considerable discussion.

Let us consider the practical side of this production question and in order to provide an introduction for my own notions on this subject I will mention one of the most vital causes of loss in production. It is that sustaining vitalizing element so necessary to the welfare of every mill and so often badly neglected, the preparation of the work from the opening of the cotton to the slashing or dressing of the warp before it reaches the looms.

On the other hand, I do not overlook the fact that men are human, and where the human element enters into any work we will always find mistakes being made, also it is by these mistakes that we should learn to increase our knowledge.

It is the aim of every mill man to get as much production off each week as he can, and as the mill only receives money for the cloth it ships out, it is only natural that it is from the looms that he looks for this production. Of course the card room and the spinning room must produce their maximum quantity to keep the weave room running, but no matter how big a production they get, if the weave room does not produce, the mill will suffer.

Who should be held responsible for the weave room production? Ask any weaving overseer and see what his views on this subject are. He would take you around his room and show you warps that were poorly sized or with weak ends or perhaps warps with hitchbacks on them; some will have bad reeds and harness, all pointing to poor preparation. Again he can readily point out to you the defects in the filling he is receiving. All of these, due to the result of poor preparation.

A poorly dressed warp will cause loss of production, not only on that particular warp, but having to spend considerable time with it, the weaver cannot give the other looms the attention he should. The same is true of the items filling, harnesses, weak yarn and poor reeds, all working against the efficiency of the weaver, and the ultimate result is loss in production. I hold no brief for the weaving overseer, but I would like to ask is it fair to hold entirely against him this loss in production, when it can be proved that the cause of it lies in the work he has received from the other rooms and over which he has no control?

If we follow these defects back to where they started, we will probably find that the overseers of these rooms have been a little lax in following up their work. There is nothing for keeping up quality like constant searching inspection by the overseer. Wherever this searching attention is given, an improvement in the work will soon show. Therefore let the carder make a better, stronger and more even roving, let the spinner watch his settings of the drafts and twists and make a good strong yarn, both warp and filling.

Attention should be given to the yarn at the spooler and warper and special attention at the slasher where the warps are dressed. If this work is given the proper attention and defects remedied, I feel sure that when the work reaches the weave room it will mean better production and more satisfied weavers.

The human element enters into this problem as it does in all others. The overseer who knows his equipment and understands his help thoroughly is prepared in any emergency to do the right thing, while one who does not or is

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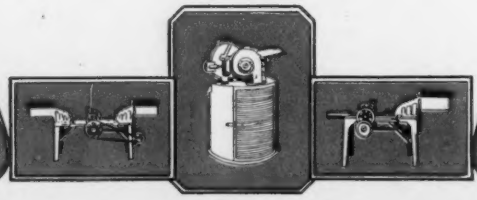


indifferent is a potential hazard, because of his limitations.

One of the most serious factors contributing to the difficulties of following up this work, has been the lack of organization in the mill among the superintendents and overseers. The real trouble develops when an attempt is made to push the work through from process to process without any effort on the part of the overseer to get quality as well as production. Meetings should be held each morning and the work discussed so as to bring up any matter pertaining to the betterment of the work. Each overseer should be allowed to speak his own mind as to the condition of the work he is receiving from the other rooms. The returns from such an organization are by no means of an intangible nature. It can often be definitely measured in dollars and cents.

The head of this organization should be the superintendent of the plant and he should be able to contribute that superior and intelligent guidance, force and sound judgment expected from a man in his position. His integrity, his cool common sense under adverse circumstances, his realistic lucidity in the penetration of the difficult problems that arise in the course of a day's work, should make him an executive worthy of the admiration and cooperation of his overseers and help.

Indifference on the part of an overseer in regard to the complaints about his work, is a destructive factor in any phase of mill organization. It is impossible to run a mill successfully with only one man, the weaver, to carry the burden of carelessness, indifference and even inefficiency of the other overseers. Every overseer must realize that he must be on the alert and use his judgment and common sense. He must be alive to the possible hazards and the evil consequences arising from work leaving his room or machines that is not up to the standard. There is a direct relationship between organization, increased production and lower cost.

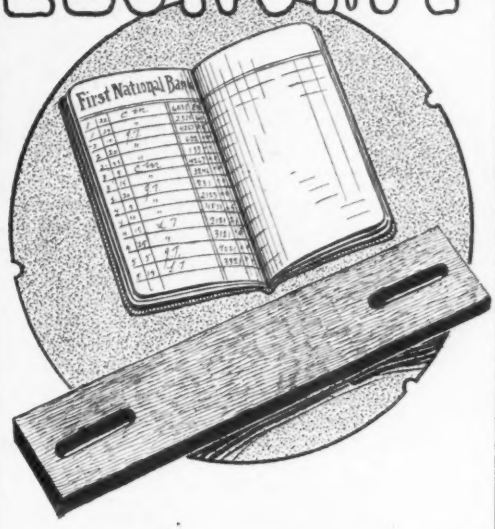
There are many other factors which enter into this situation, in fact, a whole book could be written about it, but when all is said and done, the only solution is to get the maximum production off the loom with the lowest possible cost. If I have said anything that seems unjust or written anything that is open to doubt, we should take into consideration the distressing situation that confronts the mills today, and I believe an organization among the superintendent and overseers is not an ornament or a social device; it is a reality and should function in such a way that an improvement in the work would soon be apparent.

Each and every mill has its own specific problems to solve, that may cause much worry to the executive whose duty it is to solve them. Every mill executive should assume as part of his responsibility, the study of conditions that may cause this loss of production within his own plant, and much would be done toward bringing this plant's efficiency up to where it belongs and with better production, than by any other single act. Unfortunately, the standards of comparisons are difficult if not impossible to set up. What may be considered excellent results when judged by one man in a mill, might be considered otherwise when visualized by others.

The facts stated in the foregoing may seem superficially to be unrelated, in reality they are manifestations of the most significant details neglected in cotton mill affairs today.

S. E. M. (MASS.)

ECONOMY



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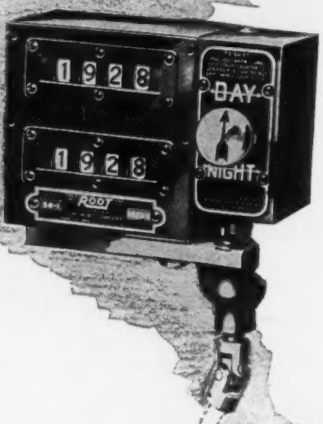

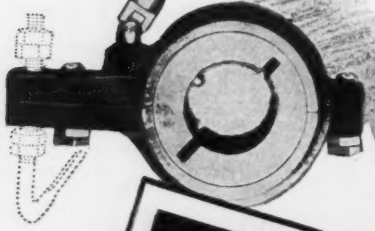

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Vaseline for Slipping Belts?

In the March number of COTTON "K. H." recommends vaseline for treating slipping belts.

I have seen nearly everything recommended for use on belts varying all the way from printer's ink to burned automobile tubes. It is a fact that mineral oil constantly dropping on a belt makes it soggy and soft, and causes slippage, and in time rots the belt, or necessitates cleansing the belt with benzene or by means of some other method. Vaseline is a pure mineral hydrocarbon product, same as petroleum jelly, and will have the same effect if used regularly for dressing oak leather belting as mineral oil would have. Don't use vaseline.

A. S. (N. J.)

Experience and the Lack of It.

EDITOR COTTON:

Seb Slay was the new superintendent at the Taloo mill. Six months previously he was master mechanic at the Sprew mill. He resigned this job one day when the superintendent told him that his shop looked like a pig pen in distress. He secured his job as superintendent at the Taloo through the efforts of a friend connected with an employment agency. The Taloo had a hard name. Possibly the manager of it in hiring Slay thought he could be no worse than his predecessor, and might possibly be considerably better.

A few weeks after taking charge at the Taloo, Slay hired Ruff Wang as overseer of spinning—20,000 spindles, making both warp and filling.

"I have fought with him and fought with him," said Slay to his new overseer in offering an explanation as to why he had discharged Wangs' predecessor. "He could not get off the production to keep the Draper looms running."

Wang had been out of work for some time; he needed a job; he had known Slay when he was master mechanic, and when he was approached by Slay in regard to accepting the job as overseer at the Taloo, he decided to do so, although he knew the reputation of the mill.

One of the first things noticed by Wang on his job was that the warp bobbins had to be doffed before they were anywhere near as full as they should be. "Spindles badly out of plumb; I must have them set," thought Wang. "I could add a lot of time to the doff, or I could speed up the frame, after the spindles are set. Get more production in either case. I'll ask Slay for a spindle setter."

But asking Slay did no good. The superintendent could not be made to see how plumbing spindles would help anything, and besides he did not want the expense of hiring the work done. So Wang taught his section hands how to set spindles; and, plumbing one frame a day, in a few months the spindles were all set.

Another thing Wang noticed was that the rails on the filling frames were running up fast and down slow. And there was a chronic shortage of bobbins. On one of his frequent trips to the weave room to urge its overseer to have the bobbins picked up and sent to the spinning, Wang asked the weave room boss if he had any trouble with filling shelling off.

"Trouble! Plenty of it," exclaimed the boss. "Mr. Slay has ordered 50,000 new bobbins, and he's having them made

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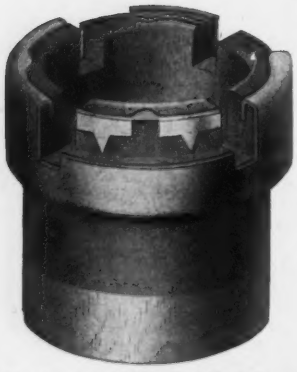

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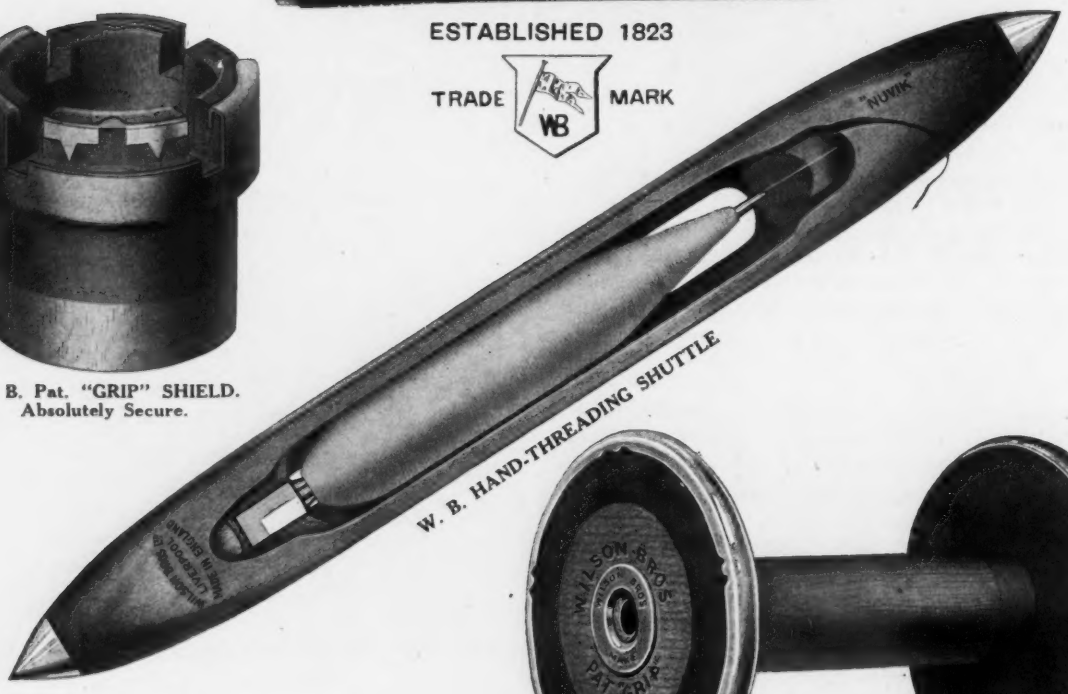

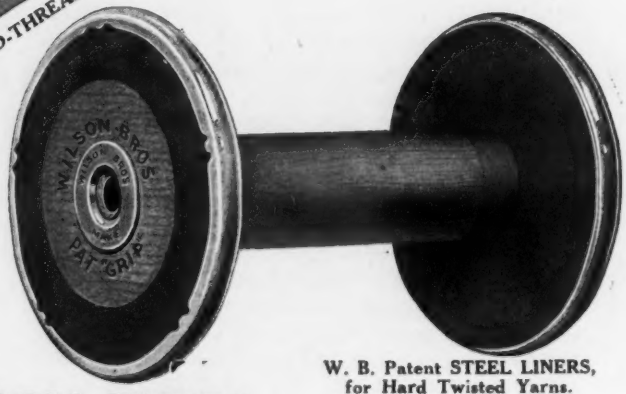

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according to an idea he has—bobbins with deeper grooves in them to overcome the shelling off."

"Well," said Wang, "we need the bobbins badly enough; they can't get here any too quick to suit me; but I think I can stop the shelling off right away. How are your looms, not too much slam to them is there?"

"No," replied the weaver, "I know my looms are all right. I asked the other boss spinner if he couldn't do something to stop the shelling off, but he couldn't seem to do anything."

"Well, I'll see what I can do," said Wang as he departed for his room. "Hustle up those bobbins will you? I am very short."

Arrived in his room Wang gave orders to have the filling frames changed so the rails would run down fast instead of slow. A few days later when he saw the boss weaver he asked, "Well, how's the filling coming; any better?"

"Say, it's coming fine. I am having hardly any shell-off; practically none," answered the boss weaver, with a broad smile. "What did you do to stop it?" he asked. "I don't see any difference in the looks of it," he added.

"Oh, I am just winding the yarn onto the bobbins a different way," answered Wang. "Send me up some bobbins as soon as possible, will you? I am very short."

The 50,000 new bobbins arrived after a time, but the shortage was not relieved any. Made according to Slay's idea, with deep grooves, the yarn left on them as they came from the looms would not clean off in the bobbin stripping machine and had to be pounded and twisted off by hand. Formerly where one boy operating the bobbin stripping machine was able to keep a supply of bobbins going to the spinning fairly well, now half a dozen boys could not manage to clean enough of the new bobbins to keep the spinning running.

Wang could not produce yarn without bobbins, and when the weave room boss wasn't howling for filling to keep his looms running, Wang was howling for bobbins to keep his spinning running. Slay was careful to keep away from the weave room, contenting himself with sending notes to the boss, ordering him to keep the spinning supplied with bobbins.

The weave room boss finally got thoroughly disgusted and quit.

Another thing that Wang noticed when he took charge was that his warp bobbins were in a terrible state, being hacked, cut, splintered and split till they were well nigh worthless. A spooling department was at one end of the spinning room, in charge of a man who had a slashing department in an adjoining room. Every afternoon at a certain hour Wang noticed an immense bag of cut waste being picked up at the spooling machines and sent down the elevator.

"No wonder the bobbins are all hacked up," thought Wang. "But why is all this yarn cut off? It's good yarn. I keep the slack bands cut off and there are very few soft bobbins. Something queer here."

After eating his dinner hurriedly, a day or two later, Wang sauntered around the spoolers and saw ten or twelve girls sitting on the floor between the machines busily cutting yarn off bobbins of all sizes up to half full. Picking up a handful of bobbins here and there, Wang saw there was nothing whatever the matter with the yarn.

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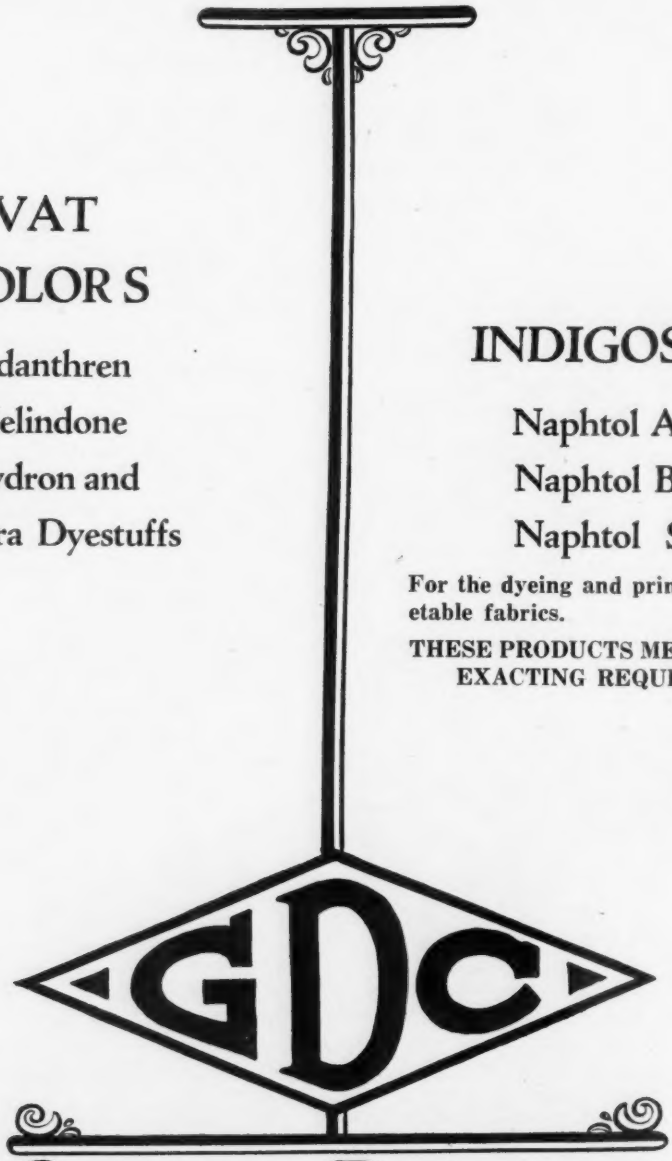

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Mystified, but keeping an eye on the spoolers whenever he was in their vicintiy, Wang saw that the girls were discarding bobbins which broke down at any time before they were half run off, and replacing them with full ones. The yarn on the discarded bobbins was cut off during the noon hour and before starting time in the morning.

One day Slay surprised Wang by telling him he had ordered some new warp spinning frames. "I am going to have larger rings and a longer traverse on these new frames," he said.

When the bobbins for the new frames came, Wang tried them on the spindles as soon as the frames were sufficiently erected for him to do so, his object being to find the distance between the tops of the bobbins and the thread wire board. A suspicion had been long in his mind that all would not be well if things proved as he suspected they would. What he saw caused him to seek the superintendent.

"We'll never be able to make those new frames run," he said to Slay, "not but a short time, anyway." "Why not?" Slay asked, much surprised.

"The bobbins are too long; there isn't enough space between the thread wire board and the tops of the bobbins," replied Wang.

"What has that got to do with the frames not running?" inquired Slay.

"Well, you see there needs to be space enough between the thread wire board and the tops of the bobbins so the yarn can clear the bobbins and not rub on them. As long as the tops of the bobbins remain smooth the work will probably run fairly well, but the first cuts on them will cause the ends to break down; and there soon would be the devil to pay. I have set the thread wire board as high as it can be set, and there isn't half the space there should be."

Slay appeared bewildered and doubtful.

"See these old frames," said Wang; "the bobbins are hacked and cut terribly. Now notice how much space there is between the thread wire board and the tops of the bobbins. Put a longer bobbin on than is now on and the work would not run; the ends would catch in the cuts and break down. If these bobbins were smooth I could put more yarn on the bobbin by running a heavier traveler. I have to run a lighter traveler than I ought so the ends will clear the tops of the bobbins. But the bobbins for the new frames are so much too long the ends will hug the tops of them all the time, and a cut on them means the ends will break down."

"I won't allow them to be cut!" exclaimed Slay, as he strode away. "I won't stand for a knife being touched to them."

But they were cut, and were soon in such a state that Slay had to have a length cut from them and the new tops rounded and painted.

REFEREE (CALIF.)

Booklet on Transmission Belting.

A booklet covering the Tentacular transmission belting has been issued by Alexander Brothers, 14 South St., Philadelphia, Pa. This booklet is prepared specially to acquaint engineers, manufacturers and others with the characteristics of this product. It explains the construction and purposes of this type of belt, and gives tables of horse-power rating, etc., for it. The booklet may be secured upon request.

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Viscolite is excellent for imparting a desirable, full yet soft feel to bleached and dyed fabrics, including damasks, calicoes, lawns, batistes, laces, mercerized fabrics, rayon, etc., and fine cotton goods of all kinds.

Viscolite dries to form a clear, strong, flexible *film*, which accounts largely for its desirable sizing properties. ***Write us for a sample of this film.*** You will find it of interest.

All shipments of Viscolite run uniform. Let us help you with your problems.

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VICTOR G. BLOEDE CO.
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Manufacturers of Quality Textile Gums since 1873

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251 Tockwotton St., Providence, R. I.

Grasselli Zinc Chloride Defeats ROT!

BREAK the destructive grip of EXPENSIVE ROT on your mill timbers. Don't let Rot cause costly replacements of floors, sub-floors, roofs and supports. ELIMINATE this EXPENSE.

GRASSELLI ZINC CHLORIDE will definitely accomplish this because Zinc Chloride *defeats* rot by preventing its development.

GRASSELLI ZINC CHLORIDE impregnated into lumber makes it one of the most effective of wood preservatives. It protects the lumber against the RAVAGES of rot and decay. It adds years of life, strength, durability and usefulness. It will save mill owners thousands of dollars annually by eliminating several expensive replacements.

GRASSELLI ZINC CHLORIDE is highly toxic, thus preventing growth of ruinous fungi. Timber treated with one pound of Zinc Chloride per cubic foot has a toxicity about 4 times greater than the minimum quantity shown by government tests to prohibit growth of fungi. Timber treated with 0.5 pound per cubic foot has a toxicity about two times greater than the minimum toxic limit.

GRASSELLI ZINC CHLORIDE is colorless, odorless and fire-retardant—and *you can paint over wood treated with it.* Zinc Chloride readily penetrates timber. In fact, no wood preservative penetrates more deeply nor more effectively. Grasselli Zinc Chloride is the most economical chemical for wood preservation.

Zinc Chloride has been recognized as a standard wood preservative for over 50 years. Ask your architect about it or ask us.

Treating Plants in South

The South has two fully equipped commercial pressure preserving plants for treating solely with Zinc Chloride according to standard inspection They are:

The Piedmont Wood Preserving Co. of Augusta, Ga.

W. C. Meredith Co., Inc. of Atlanta, Ga.

These plants are prepared for prompt and expeditious service and fully capable to take care of the great demand for Zinc Chloride treated timbers.

Additional Zinc Chloride treating plants are located in other textile regions.

CHEMICALS GRASSELLI ZINC EXPLOSIVES

THE GRASSELLI CHEMICAL CO. · *Cleveland, Ohio*

Established 1839 ·· Branches in 17 Cities

MEMBER SERVICE BUREAU, AMERICAN WOOD PRESERVES ASSOCIATION

GRASSELLI GRADE

A Standard Held High for 88 Years

Improving the Breaking Strength.

EDITOR COTTON:

Answering "C.E.B.(N.C.)", whose question "How Can Breaking Strength be Improved?", was published in the "How Other Men Manage" department of the January number of COTTON, I see that he is using the same grade and staple of cotton that we are using, with the same lay-out, but not getting a standard break.

If I were "C.E.B." I would cut the draft of the drawing frames to 5.50 and add more draft on the slubber and jack frames. The draft on the spinning is okeh, providing double roving at spinning is being used, if not, there is room for more draft there. The setting for the drawing rolls on the 57-grain card sliver depends on the weights and the speed of the front rolls. If this contributor can get the speed of the front rolls around 200 r.p.m., with 18 pound weights on each end of the back and third rolls, and 16 pound weights on each end of the front and second rolls, the setting below, will give him the best of results. Front roll 1 1/4-inches in diameter; second and third roll 1 1/8-inch in diameter; back roll 1 3/8-inch in diameter.

Setting drawing rolls: Front roll to second roll 1 9/32-inch; second roll to third 1 5/16-inch; third roll to back 1 6/16.

Slubber, Woonsocket 24 pound weights, front roll 1 1/4-inch; back roll 1-inch in diameter. Setting: Front roll to second 1 1/4-inch; second roll to third 1 1/2-inch.

Fine frames, Front roll 1 1/4-inch; back roll 1-inch in diameter. Setting: Front roll to second 1 3/16-inch; second roll to back 1 3/8-inch.

Spinning: Front roll 1-inch; back 7/8-inch in diameter. Setting: Front roll to second 1 1/8-inch; second roll to back 1 3/16-inch.

All of the foregoing settings are from center to center of rack roll, and if "C.E.B.'s" rolls are not the same size as these, he should allow for the bite of the rolls.

It could be that "C.E.B." isn't getting the finished card sliver that he should get, so I will give below, our settings on pickers and cards:

On our breaker picker we have the 3-blade beater, striking 25 blows per inch, set to the evener pedals 1/4-inch, to the top grid bars 1/2-inch, and 1-inch at the bottom bore, making a 15-ounce lap. On the finishing picker we have the carding beater, striking 25 blows per inch, set to the evener roll with a No. 34 card gauge, to the top grid bars 1/2-inch, and 7/8-inch at the bottom, making a 12 1/2-ounce lap.

The setting for the cards are: Feed plate No. 12. Mote knives top No. 17, bottom No. 12. The knives should be set vertically so the fibers will not whip against the edge of the knife and damage the staple. Licker-in screen nose 1/8-inch, and at the back, next to cylinder, set as closely as possible to safely set to the licker-in and cylinder. This cuts off the draft from the licker-in and cylinder and lets more leaf fall through the screens. Set the licker-in to a No. 7. Back knife plate No. 12 at bottom and No. 17 at top. Flats set to a No. 7. Stripper plate No. 34. Bottom Plate No. 29. Doffer No. 7.

If "C.E.B.'s" card clothing isn't loose and the wire is sharp, with a good licker-in, he should get an average break of better than 90. Why? Because it's being done.

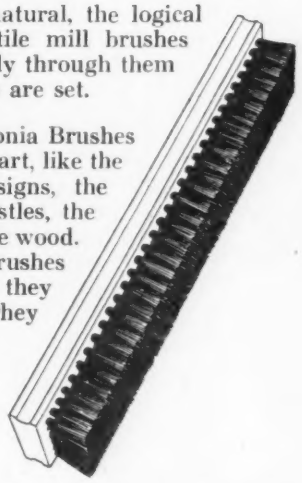
T. R. (N. C.)

Your Men Can Tell Good Brushes

Your men are the natural, the logical judges of what textile mill brushes should be. It is really through them that brush standards are set.

Those who use Gastonia Brushes like them from the start, like the scientific handle designs, the durability of the bristles, the way they are set in the wood. The more these brushes are used the better they are liked — for they *pe* their merit in actual use.

All work guaranteed.



(Above) CARD GRINDER BRUSH No. 48.
High grade China bristle, machined stapled in a hardwood block. Six rows of bristles. 19 inches long.

(At left) COMBER DUSTER No. 20.
Solid back, hand pegged, hair and bristle mixture. 14 in. long.

(Below) ROLLER OR REED BRUSH No. 25.
Two rows best bristles. Solid back construction.

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Rail Brushes
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Belt Scrubs
Tie In Brushes
Shuttle Brush

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In repairing rolls, we use only the best grades of raw stock. Rolls last longer when filled at our factory. Expert workmanship. We are also equipped to replace the wood cores, when cracked.

GASTONIA BRUSH COMPANY
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"Send us Four Extractors the Same as Last Order"

One of the most successful woolen mills in the U. S. A. recently ordered additional machines to take care of enlarged production in exactly these words.

The confidence back of this order is based upon the findings of their plant engineer and his experience with Tolhurst and other extractors over a period of years.

Whether the product be wool, cotton, silk or rayon, there is a size and type Tolhurst ideally suited to the need and the layout of the mill.

Write for catalog, or if you prefer, the consulting service of a Tolhurst Engineer may be arranged on request.

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Dyeing Rayon Yarn

The Easiest to Dye and the Most Difficult to Dye Right. Suggestions Presented Before the Chemical Division of the Southern Textile Association

BY E. F. JAMES

PRESIDENT, CAROLINA DYEING AND WINDING COMPANY.

It is difficult in writing of a product which has shown such tremendous and romantic progress as rayon to avoid reiterating features which are mentioned so frequently that they must be familiar to all textile men whose activities provide intimate contact with this fiber. However, in discussing the dyeing of rayon, it must be remarked that distinct progress has been made in recent years due to a very great extent to the improvement in their product by manufacturers of rayon yarn. These improvements are both physical and chemical, enabling the consuming industries to continually add to their offerings new lines of fabrics remarkable for their quality and beauty.

On the other hand, the success of rayon yarn could not have been possible except for the earnest effort of chemists, dyers, and dyestuff concerns to perfect materials and methods which would produce high quality merchandise. A bit of improvement here, an elimination of impurities or unnecessary handling there, and gradually the dyeing industry has reached a plane where good results on good rayon are the rule rather than the exception.

I hope you will pardon me if I confine my remarks largely to rayon yarns only, as my knowledge of piece goods dyeing involving rayon is more or less superficial.

From a physical standpoint, improvement in the strength and quality has not in the slightest measure reduced the necessity for the utmost care in handling both wet and dry rayon yarn. A gentleman recently remarked that a chain warp with a water band binder could be kicked around without damage, but there are no red headed step child methods in rayon yarn handling. As commission dyers, we have always found it necessary to practically write our names on every skein, meaning that any defects must be detected, and a few damaged skeins scattered through a delicate fabric can result in a loss far beyond the cost of the yarn itself. Considering the low percentage of prices to the cost of the yarn, the dyer assumes a risk of considerable proportions, and he has learned that the closest possible supervision and care must be exercised if he is to produce a quality of workmanship which will give him reasonable protection against complaint. The greater the precaution taken to keep the skeins from becoming tangled, chafed, torn, or disarranged in any way, the greater will be the possibility of a winding cost reasonably comparable to that of the natural yarn.

We will assume that great care has been taken to have all equipment and methods worked out by common sense application, according to conditions peculiar to each dyehouse, and that employees have been trained to detect defects and eliminate damaged yarn as well as the cause of the trouble. We then must consider dyeing from the standpoint of equipment.

There are four distinct methods in general use for dyeing rayon yarn. One is that of hand kettle dyeing, which is the oldest known to the dyeing industry. Another is the type of machine which suspends the skeins between two sticks in a large reel, the latter turning through the dye liquor as the sticks rotate. A third is a machine containing a series of rotating arms or reels which extend over the dye liquor, and turn the skeins after they are lowered into the dye bath. All of these methods include a stationary dye liquor, and the two types of machines are a mechanical approximation of hand kettle dyeing. The fourth method is to wind the yarn in package form and force the dye liquor through it.

If we consider rayon yarn dyeing from the standpoint of the individual mill, we can safely say that if chosen wisely and with due consideration for every possible fabric to be made and every class of colors to be dyed, as well as the experience of the operatives with any or all of these methods, only one method of the four mentioned would probably give entire satisfaction.

The commission dyer however is not so fortunate, and must choose his equipment to suit every class of trade, method of knitting or weaving, every fabric, and each type and characteristic of chemicals and dyestuff. If his activities are at all extensive, covering diversified branches of the textile industry, one method will hardly give him sufficient flexibility, considering the insistence of the trade for level dyeing, perfect matches, necessary fastness according to the fabrics to be made and methods of finishing, lowest prices, and what is decidedly important, economical winding, regardless of the brand, quality, or denier to be dyed.

Many special conditions in addition to the general ones mentioned enter into the selection of equipment. As an example, we might mention the noticeable increase in the use of 75 and 100 denier, dyed with vat colors—only package dyeing seems to solve this problem with economy to all concerned. The size of the lots to be dyed, which with a commission dyer varies from a few pounds to several hundred, necessarily influences the type of equipment selected.

One general recommendation can hardly be overlooked, and that is the use for dye kettles, either hand or machine types, of Monel or similar metals, which show no destructive action in the presence of acids or other chemicals, are readily cleansed, permitting a light shade to be dyed immediately following a dark one, and are in every way an aid to efficient and economical results.

With regard to the chemical side of the rayon yarn dyeing proposition, there are wide differences of opinion on many points involved, and each dyer must determine for himself from constant and long experimentation what best suits his conditions. Careful dyestuff selection cannot be too strongly emphasized. Not only is it essential to know exactly what fastness is needed for the fabric to be made, but dyestuff must be chosen which will work well

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The Bradley Stencil Machine makes Stencils in half a minute at reduced cost of 1-10c each. Write for catalogue and price list.
In universal use by thousands of manufacturers and shippers.
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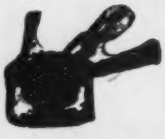

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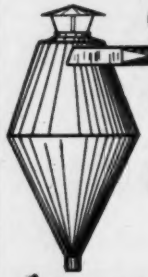

under practical conditions and with the methods and temperatures which the dyer has worked out. Some dyers start cold and build up their temperatures—some the opposite. Some start with and maintain a high temperature —some low. Obviously this has a decided influence upon dyestuff selection and many other important elements, and it need only be said that whatever method will obtain satisfactory results and is most economical should be adopted.

Regarding temperatures, we might mention that dye-bath heat up to approximately the boiling point is not injurious to rayon yarn, except that live steam should not be injected into the bath while the skeins are suspended in the liquor, as this might tangle the skeins. In drying, it is best to circulate warm air with a system of fans, and this is practically a standard method in all modern dryers.

The rayon yarn as it comes from the manufacturer seldom requires scouring or more than a wetting out in warm water or mild alkali, although this may vary with the brand of yarn to be dyed. Usually whatever small amount of softener the manufacturer has used to make the yarn more pliable for converting operations is readily removed or inconsequential in skein dyeing. Naturally any handling which can be avoided should be, to help keep the yarn in good condition for subsequent winding.

Softening yarn in connection with dyeing can be done either in the dye-bath or as a last rinse, depending upon the class of dyeing and the softeners selected, as well as the purpose for which the yarn is to be used. For most requirements, a small amount of softener is sufficient, as rayon is naturally a soft pliable yarn.

For certain knitting operations, such as for ingrain hosiery which might be packed for retail sale without washing out in the finishing, a small amount of oil before winding might be desirable, but an oil should be selected which will not affect the rayon fiber through chemical action over a long period. For oiling natural or dyed rayon yarn to be knitted into grey hosiery which is then washed thoroughly and piece dyed, the oil is selected largely for its lubricating and stainless qualities, but with due regard for the facility with which it can be removed before piece dyeing. In such cases, from three to ten or twelve per cent might be desirable to produce the best knitting results.

There is seldom any difference, speaking only from a dyeing standpoint and disregarding winding costs, between *A*, *B* and *C* grades of rayon, except that occasionally rayon defective chemically might possibly be put into *C* grade if it was satisfactory physically, but this no doubt is a rare condition. Most grading is done strictly on a physical basis, broken filaments and other defects establishing the quality, and trained operatives sort the yarn according to the determined classifications.

One condition affecting rayon dyeing which has never been fully eliminated is that of light and dark skeins. This is of decided importance to manufacturers of plain taffetas, draperies, corset fabrics, elastic webbing, plain braids and others. The dyestuff used is an indicator of a chemical condition practically impossible to detect in the natural yarn, either dry or wet, and no brand of rayon is entirely free from this unfortunate condition. In some yarn it shows up only on rare occasions and so slightly as to seldom cause any considerable difficulty, while in others it is most prominent at times. Some dyers have been able

THE SEAMLESS KETTLE

The Bucyrus Seamless Kettle eliminates the greatest cause of steam jacket kettle failure—the brazed seam in the outer jacket.

The Bucyrus kettle has the essential feature of a seamless outside as well as inside jacket, each formed from a single plate of copper.

THINK of it! No seams of any kind in either jacket.

Bucyrus' amazing record of sales with this new kettle has a far deeper foundation than the price. It rests solidly upon the traditional Bucyrus custom of not offering a new design until it has a thorough trial in actual service.

Send for catalog and prices.

The Bucyrus Copper Kettle Works Co.
729-735 E. Warren St. Bucyrus, Ohio

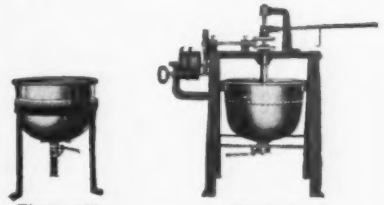

Figure 109 Figure 52 Figure 101

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FOR MACHINE DRAWING

The GARLAND Loom Harness is Preferred in Many Mills

Our loom harnesses are especially well adapted for machine drawing because the eyes are of uniform size, stand square, are in perfect alignment and are open just enough for drawing in to the best advantage.

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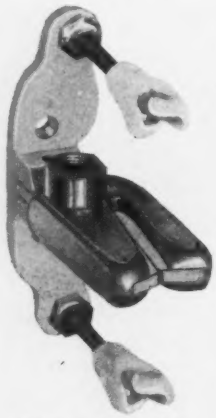
Double Porcelain Thread Cleaner



Patent Applied for

$1.25

Illustration above shows the double thread cleaner which can be fastened to either the round or square travis bar. Blades adjustable to one ten thousandth of an inch.

PRECISION ADJUSTMENT

WE claim to have the only cleaner with a mirror finished blade, which has been approved by Rayon and Cotton Manufacturers. We make this cleaner in 16 different settings, each one absolutely guaranteed.

(Actual Size)

THIS cleaner can be attached on your present machines without any alterations and is the only practical fool-proof cleaner made for use on top of washboard.

Brush for cleaning the blades of these cleaners, shown here, is obtainable from us.

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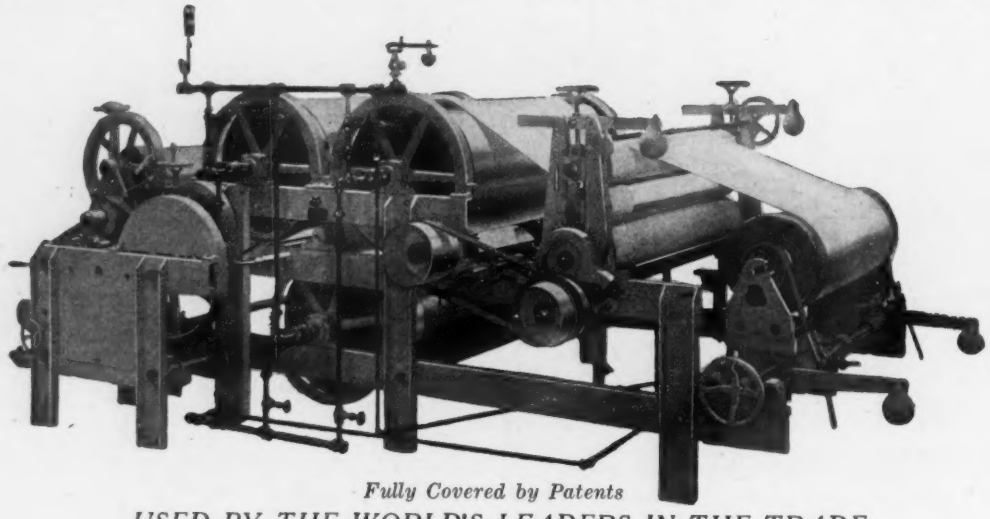
SOUTHERN REP. GIBBONS G. SLAUGHTER, CHARLOTTE, N. C.

THE JOHNSON WARP-SIZING MACHINE



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G. G. SLAUGHTER
Charlotte, N. C.

to work out methods to keep the light and dark skeins at a minimum, but the condition is not really a dyer's problem, and must ultimately be overcome in rayon yarn manufacture if at all.

Fortunate is the dyer who has a sufficient diversity of products so that he need never try to "fix up" a lot of rayon skeins being dyed. The extra handling from re-dyeing is almost certain to be ruinous to economical rayon winding, and it is well worth while to use every bit of precaution necessary beforehand and check the formulae with the greatest care, so that the chance of having to add more color or handle the yarn too much is reduced to an absolute minimum. Yarn may be not just what is wanted by one customer, but can frequently be used in other fabrics perfectly, or can be made into special twists. In such cases it is far better to start a fresh lot on the original order, and deliver exactly what is required.

In no other class of dyeing is dyestuff cost of so little relative importance—it is a frequent practice among rayon dyers of wide experience and thorough dyestuff knowledge to use dyestuff in higher price ranges than required if by so doing a quicker, closer match and a more level result is obtained. Permit me to conclude by giving the opinion that rayon is the easiest fiber to dye and the hardest to dye right.

Further Plans for Greenville Show.

Among other plans for the Eighth Southern Textile Exposition which will be held in Greenville, S. C., during the week of October 15th, W. G. Sirrine, president, announces that arrangements have been made with the Yale & Towne Manufacturing Co., Stamford, Conn., for the use of an electric crane truck for the use of exhibitors in erecting their exhibits preparatory to the show and handling them afterwards. The truck will lift loads up to 1500 pounds and will place the article within a radius of seven feet. Exhibitors desiring the service of the truck are requested in making their freight shipments to send a special letter to the secretary of the Exposition on this subject. Likewise, if any hoisting is necessary arrangements will be made to provide hand blocks. Blocks and trolleys may be obtained upon sufficient advance notice for serving exhibitors' tools or machines during the Exposition.

L. L. Anderson Enters Counsel Field.

Lester L. Anderson has resigned as manager of the Department of News, The Byron G. Moon Co., Inc., and has established his own business as counsel to textile-apparel firms on industrial and sales problems. In his connection with the Moon company, Mr. Anderson functioned as news editor for The Associated Knit Underwear Manufacturers of America, The National Association of Leather Glove and Mitten Manufacturers, Associated Service Wholesalers and Standard Brand Service; he also was managing editor of Knit Underwear News, official publication of the knit underwear association. He became identified with Byron G. Moon company in November 1926. Prior to that time, for five years, he was connected with the Daily News Record, and at the time of leaving was night editor. The Moon company announces that no direct successor to Mr. Anderson will be appointed, but that the company's various industry divisions will be enlarged to take care of this phase of the work.

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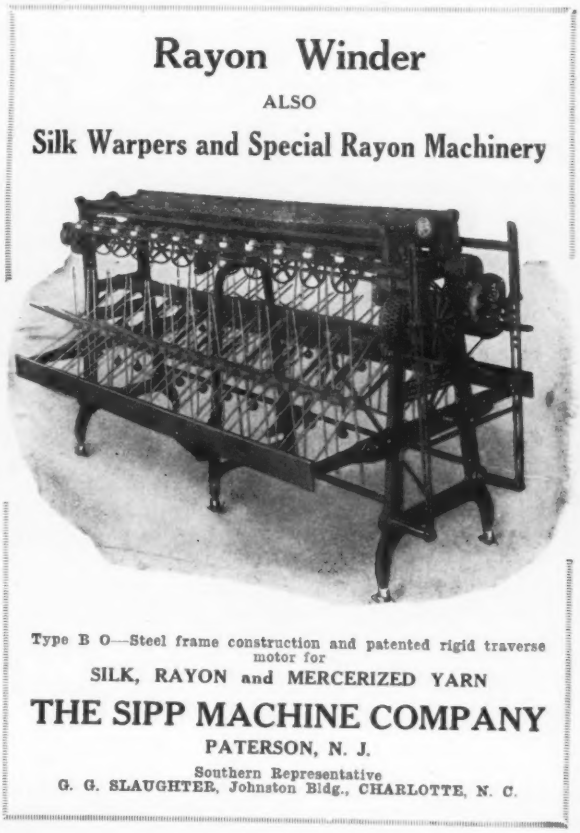
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ALSO
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SILK, RAYON and MERCERIZED YARN
THE SIPP MACHINE COMPANY
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G. G. SLAUGHTER, Johnston Bldg., CHARLOTTE, N. C.

High Cost of Merchandising.

(*Continued from page* 672.)

tailers. Clarence Whitman & Company are selling agents for the Esmond Products; Parker, Wilder & Company handle lines of several manufacturers.

Paul H. Nystrom in his Economics of Retailing says that out of 100 concerns doing national advertising, seventeen sell to jobbers only, eighteen to retailers only, eleven through agencies only, eight to consumers only, twenty-eight to jobbers and retailers, thirteen to agencies and retailers, four to jobbers, agencies and retailers, one to jobbers, consumers and retailers.

Study of Marketing Necessary.

One can well see that such a condition is not warranted. In most instances the markets have not been surveyed and analyzed. A hit or miss method seems to be the rule. We cannot say off hand that the jobber must be eliminated. In some cases he is necessary. The jobber can handle the smaller items with a saving, he can reach the small retailer with an assorted line where the many manufacturers affected could not. He can better check up doubtful credits.

The main things to consider in determining the method of marketing the product are:

1. *The product.* It may be necessary to reach the consumer very quickly.
2. *Service.* A linotype is sold direct because it involves a later service.
3. *Financing.* The producer may not be able to open up wide markets.
4. *Volume of business.* The greater the volume the greater the distribution. Smaller unit cost to market.
5. *The field itself.* The field to cover certain types of product may be quite extensive. Some companies distribute direct East of the Mississippi and use middlemen West of the river.

A thorough analysis should be made of the entire market and the production should be considered in relation to the market. This phase will become increasingly more important as the years go by.

In addition to the various practical details of marketing, of actually getting the goods to the ultimate consumer, there are other functions of great importance performed by marketing. These more important functions are trading and price making. We shall treat these briefly but will try to suggest their real part in this great game. Some of the so-called middleman's profit, for which the consumer pays, goes to the traders on the stock and trade exchanges. These traders are really risk takers and they must be well repaid for their services. According to Geo. Roberts there are certain marketing risks which must be assumed by the producer and marketing agency and charged to the consumer along with the other standard production and marketing costs. Style changes are one element and adverse weather is another.

Future Trading.

Exchanges such as the New York Produce, The Chicago Board of Trade, The Minneapolis Chamber of Commerce and the Chicago Stock Yard do not do actual trading. They provide trading places, determine rules and regulations and send out market information. There are two classes of sales on the Exchange—one is "spots" and the other is "futures".

Trading in "futures" is commonly known as speculation and is roundly condemned by many people. However, it may serve to eliminate speculation. At least the speculation is limited to those who make it their business. The farmer and small producers do not have the responsibility. When wheat is harvested in a few weeks somebody must carry their wheat. No one knows what it may be worth in the year to come and whoever handles it is a speculator. It is the same with cotton or wool. If the speculator expects the price to go up he buys for future delivery so he can re-sell at a profit. If he expects it to go down, he sells for future delivery stuff he doesn't own but which he expects to buy later at a lower price. This man is a "short" seller or a "bear"; the other is a "long" or a "bull".

Hedging.

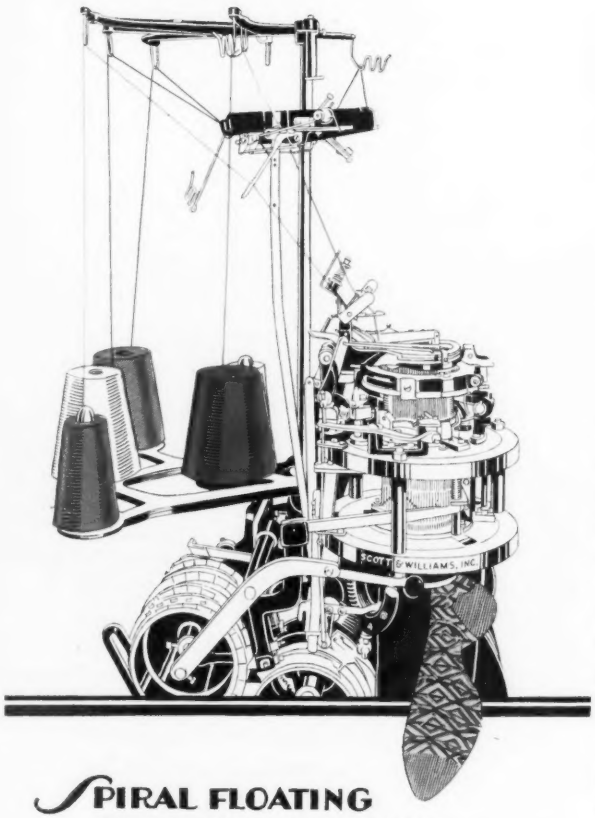
There are many mills that buy cotton without the risk incident to speculation on futures. They follow the policy of "hedging". Suppose a man has a chance to sell some goods for delivery six months later. The Cotton Market gives him a chance to purchase a future contract for the delivery specified and the mill is in this way sure of its raw material cost. Its sale is based on the future market cost and it covers the requirements immediately but no more. It "hedges" for the future. This is a great protection for the small business. The mill could have purchased "spots" but it didn't care to carry the cotton for six months. If, in the meanwhile, the delivery is moved forward on his sale and he has to go into the market to buy "spots" at the higher rate, he can sell his "futures" for a profit because they are based on present prices. If his "spots" cost less and his "futures" drop in value, he makes more on his yarn and is therefore saved.

These same "bulls" and "bears" make the price as well as do the trading. They render real service by controlling the price if they do it legitimately. If there is a shortage of cotton, something must be done to curtail consumption and increase production. This is handled by a rise in price. The method is for the buyer to step in and buy when the price drops below a certain point and if the price rises too high, they control same by selling. With free competition, publicity and no secrets and rumors, the trading should be healthy; otherwise, it is unhealthy and market manipulators, those who take "fliers" and try to "corner" the market should be publicly condemned.

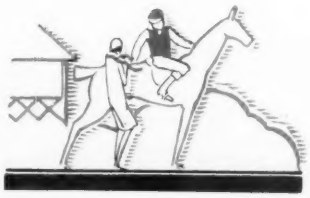
The Future and Advertising.

What does the future promise? Marketing opens up a wide field for study and accomplishments and the future bids fair to see many new developments in the field. There is a great deal to be done and the best thought is needed to work out the problems. One of the potent forces in modern marketing is *advertising*. This is becoming more important every day. It helps to get the various factors in touch with each other. It helps to disseminate trade knowledge and it widens the market field. It promotes specialization and helps reduce costs by increased economies in other ways. Advertising will play a great part in the marketing of the future.

Knitting Section



SPIRAL FLOATING
STRIPING MACHINE
BUILT INTO MODELS
HH – K – B



FANCY EFFECTS *are the* VOGUE

THE new Spiral Floating Striping Machine meets the manufacturing requirements of smart fancy hose. The effects are produced by the well known floating stitch system. The horizontal striping mechanism can be arranged to control either the facing yarn or the backing yarn.

The advantages of this new machine are increased through the fact that it is built in sizes 3 inches up to 4 inches in diameter. It can be equipped with as many as six yarn changing fingers, which gives a range of five different colors under control of the pattern mechanism, exclusive of heel and toe colors. Plain stockings can be produced by throwing the fancy effects out of action.

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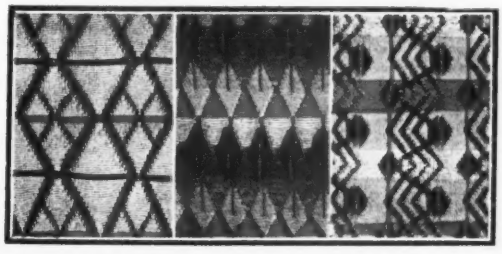

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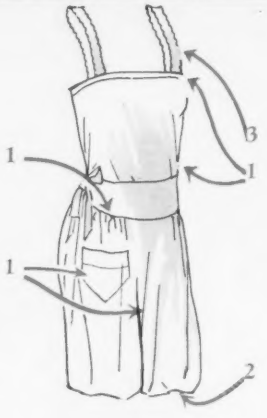
PERFECTS RAYON PRODUCTS

WHAT may appear to be difficulties in giving Rayon a fine finish are simplified by the use of Willcox & Gibbs Machines. The Flatlock Machine (1), for instance, makes a seam famous for flatness and strength, without tendency to rip or ravel. For other important seaming and stitching operations there are the Overlock Seaming and Hemming Machines, the Lockstitch Machine, the Chainstitch Machine with Registering Measuring Tension Device (2), the Chainstitch Shell Scalloping Machine (3), and the Lockstitch Zig Zag Machine.



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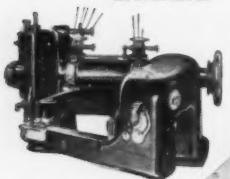

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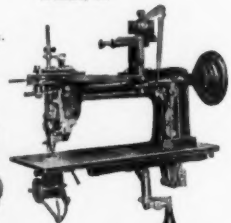

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Profitable Convention and Show for Knitters

John Wyckoff Mettler Elected President; Dyeing Fine Filament Yarn Discussed; Exhibition of High Value

At the conclusion of another constructive year of activity and progress, the annual convention of the National Association of Hosiery and Underwear Manufacturers, held in Philadelphia at the Commercial Museum on Wednesday, April 18th, reflected a continuance of the aggressive and valuable work of the organization.

John Wyckoff Mettler, president of the Interwoven Stocking Company, New Brunswick, N. J., was elected president of the Association, succeeding D. L. Galbraith, of Bay City, Michigan, who has served for two years. J. O. Wells, president, Cooper, Wells & Co., St. Joseph, Mich., was re-elected first vice-president, and J. B. Lesher, of the Unrivaled Hosiery Mills, Williamston, Pa., renamed second vice-president. Members elected to the board of directors were: R. C. Aycock, Aycock Hosiery Mills, South Pittsburgh, Tenn.; C. S. Kincaid, Magnet Knitting Mills, Clinton, Tenn.; T. W. Buck, Thos. W. Buck Hosiery Co., Philadelphia; and T. R. Hyatt, American Hosiery Co., New Britain, Conn.

The meeting was opened by D. L. Galbraith, and the first feature was the mention, in tribute, of the passing of two past presidents of the Association during the past year—Jos. S. Rambo, and Thos. H. Johnston. Mr. Galbraith announced that suitable resolutions upon the loss of these leaders would be prepared and put in the records.

Ernest Blood, Tru-Shape Hosiery Mills, Philadelphia, made his report as treasurer as the first business item of the meeting. Mr. Blood's report showed the Association's finances to be in a healthy condition.

The next feature was Mr. Galbraith's address as president, which follows in part:

President's Address.

"Continually for the past six years the question has been discussed by nearly every member of the hosiery and underwear industry as to what is wrong, and, after thousands of meaningless words have been exchanged, the conclusion is reached—first, over-production; second, we cannot seem to get together and fix prices.

"Under conditions of this kind, we always hear of panaceas. I frankly feel that if a witch doctor were dropped into the Commercial Museum to-day who claimed by the waving of a magic wand all troubles in the hosiery and underwear industry would be eliminated, that the witch's wand would be broken before he could avoid the onrushing horde.

"As I stated previously, neither this industry, nor any other industry, can fight the natural law of supply and demand, but we can use common sense and judgment to tide us over the period of further re-adjustments which must take place in our industry, and which will end in the survival of the fittest.

"If every manufacturer in this great industry had a proper knowledge of his costs of manufacturing and manufactured to order only, while our ledger sheets would not reflect the glorious figures that we gazed upon in 1917 until 1920, we all of us would use far less red ink than has been consumed in our industry in the past six years.

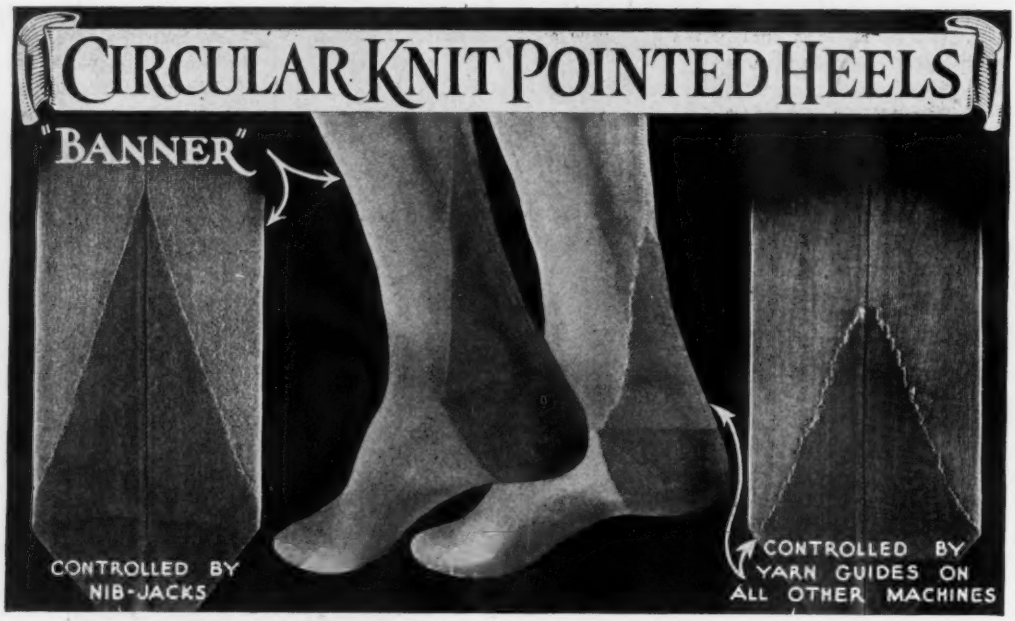
"In the matter of costs, six years ago, the managing director of this Association wrote a complete cost manual, applicable to the hosiery industry. These manuals were mailed to each and every member. Members of other industries told me it is one of the most complete and comprehensive books on cost finding that they have ever read. But I will hazard a guess that most of the books that were mailed from the Association office either reached the waste baskets of the manufacturers or were carefully placed in a glass enclosed bookcase, with the passing comment, "What a pretty cover!"

"Gentlemen, if you won't help yourselves, there is no power on this earth that is going to help you. If you refuse to recognize economic conditions, you will suffer, and cause the rest of the industry to suffer with you. If you insist upon making more merchandise than you have orders for on your books, you must create surplus stocks, and just as long as there are surplus stocks we will be in a buyers' market and take buyers' prices, because all merchandise must be liquidated regardless of cost.

John Wyckoff Mettler, the New President.

"And now I want to go back to the subject of this Association, my organization, of which I have been the head for the past two years. When I start to speak on this subject, I am inclined to become sentimental. I believe that, from the viewpoint of service prior to my election as President, I was the oldest acting director, having served in that capacity for some fifteen years. I was one of the so-called Western bolsheviks, who, in 1921, insisted that there be a change throughout the managerial and directorate structure of the Association. My thought, together with several others, was that if we cannot accomplish something to make our organization a credit to this industry and place we had better quit. So, we tried a new deal of cards.

"I will pass over the various activities of this Association, for most of you know all these and use them, but the one point I want to leave in your minds is this, that no organization is worth a tinker's damn that does not enjoy the



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The "BANNER" Nib-Jack Pointed Heel machine is the only circular knit machine that absolutely controls each needle independently. By their use you are absolutely free from any infringement, confident of better work, less seconds, greater production and more profits.

A glance at the above illustration will show you the marked contrast between the Pointed Heels made on "BANNER" Nib-Jack machines and those of all other makes using other methods.

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respect first, of its own membership, and secondly, to my mind the most important point, the respect of those with whom it comes in contact, either in a friendly or an unfriendly manner. During the year 1927, there were placed in the hands of the Association companies who were financially embarrassed, whose liquid assets amounted to over three-quarters of a million dollars. No bonds were given to anybody. The only statement that was made was, 'Let us see if the Association can work it out.'

"During that time, without anything more than the name of the Association behind these companies, with the doubtful attitude that always exists surrounding them, and on the one hand, our trying to pay off their old creditors, and on the other hand, keep their business going and buy new merchandise, your Association office bought in the hosiery and underwear industry over $410,000 worth of merchandise, with the only guarantee to the seller being, 'The Association is doing it; you will never lose where we are connected.'

Talk on Cost Methods.

Coming next was an interesting discussion of cost methods in the hosiery industry, by W. R. Basset, of Miller, Franklin & Basset Company, New York. Since John Nash McCullaugh, managing director of the Association, had formerly been associated with Mr. Basset, the president asked him to introduce the speaker.

Mr. Basset made a comprehensive and forceful informal talk on costs, pointing out the needs for a proper, accurate and simple method of cost finding. He outlined some of the work that had been done toward arriving at uniform methods of costing in various industries, relating some experiences in this connection. He stressed the fact that while today practically no manufacturer will admit the absence of some form of cost keeping, many systems in use are obsolete, cumbersome and inaccurate. He emphasized the value of working from standard or normal costs, and declared that "I would rather see all of you uniformly wrong in figuring your costs, than to have varied methods"; adding later the advantage of being uniformly right.

Mr. Basset outlined instances of misinterpretation of costs due to improper and over-developed methods, and cited various cases of what proper accounting can accomplish.

The Treating and Dyeing of Fine Filament Rayon Yarn.

George J. Groh, head of the technical department of the Dupont Rayon Co., was the next speaker, discussing the treating and dyeing of fine filament yarn. Mr. Groh's paper follows in part:

"The development of fine filament rayon yarns was originally begun with the idea of obtaining a softer and less lustrous yarn which would closely approach that of real silk. The desired softness was to be gained by the use of fine filaments and a lower degree of lustre was to result from a higher twist in the yarn. The constantly increasing use of these yarns today has developed many problems in the manufacture of the yarn and also several in connection with the manufacture of the fabrics. Many of these problems have already been successfully solved and the progress which is being made on those remaining is very encouraging to both the rayon manufacturer and the manufacturer of knitted fabrics.

"The treating of the yarns by the rayon manufacturer has been, and still is, one of the most important problems which concerns the knitter of rayon fabrics. In general, rayon yarns are supplied to the knitting trades finished in the skein or oiled in a cone. The finish is applied for the purpose of giving the yarn a better hand and to be of assistance in the various winding operations to which it may be subjected. The requisites of a good finish on fine filament rayon yarn are to soften the yarn, to give it a smooth surface and to slightly bind the filaments together. Let us consider the softness qualities of rayon yarns. It is not always possible to judge softness in the skein for it is difficult to determine how much of it is superficial. It is the inherent softness of the yarn itself that counts and this shows up in the finished fabric.

"A large percentage of the fine filament rayon used in the hosiery and underwear trades is supplied in the form of cones, oiled and ready for knitting. The selection of the proper knitting oil to be used and the percentage required has been another major problem for the rayon manufacturer. Research work to date has failed to develop the all around ideal oil to be used on rayon yarns. At the present time, animal, vegetable and mineral oils are being used either alone or in combination with each other. Primarily oils are used only as an aid during the knitting operation to enable the yarn to pass through the needles smoothly. The proper lubrication of fine filament rayon yarns is of even more importance than the lubrication of the regular yarns.

"There are four methods of oiling which are quite generally used: the immersion method, the roller method, the wick method and the spray method. The immersion method gives the most uniform oiling but requires the most oil and is the most expensive. It has been definitely proved that six per cent oil properly applied is sufficient for excellent knitting results whereas the percentage of oil obtained by the immersion method varies from ten per cent to 20 per cent.

"The processing of underwear fabrics made from fine filament yarns has not called for any unusual procedure. In general, they are boiled-off, bleached and dyed in the same manner as the fabrics made from coarser filament yarns. The materials used in the boil-off bath will, of course, vary in quantity, depending upon the oil which has been used and the kind of water present. A satisfactory boil-off formula for softened water will contain two per cent to three per cent soda ash, ammonia or tri-sodium phosphate and six per cent to eight per cent olive oil soap (based upon the weight of goods). The addition of about one per cent pine oil is also recommended. If the water is hard the soap is replaced by an equal quantity of sulphonated castor oil. The ratio of the weight of bath to fabric should be about 20 to 1. The boil-off is carried on for three-quarters of an hour at a boil, after which the material is given two warm rinses.

"Bleaching of fine filament rayon fabrics can be accomplished by the use of chlorine, hydrogen peroxide or sodium peroxide. The concentration of the bleaching bath will, of course, depend upon the degree of whiteness desired and whether the original fabric was bleached or unbleached. Hydrogen peroxide is particularly recommended as the least likely to cause trouble. After bleaching to a full white, the fabric should be rinsed well and blued using a mixture of acid blue and acid violet.

"The dyeing is carried on in a bath, the ratio of the weight of which to the weight of fabric is approximately

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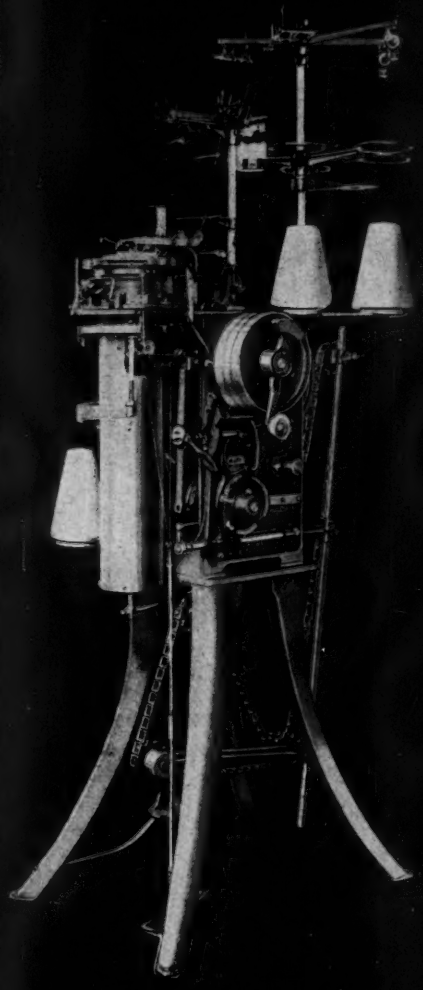

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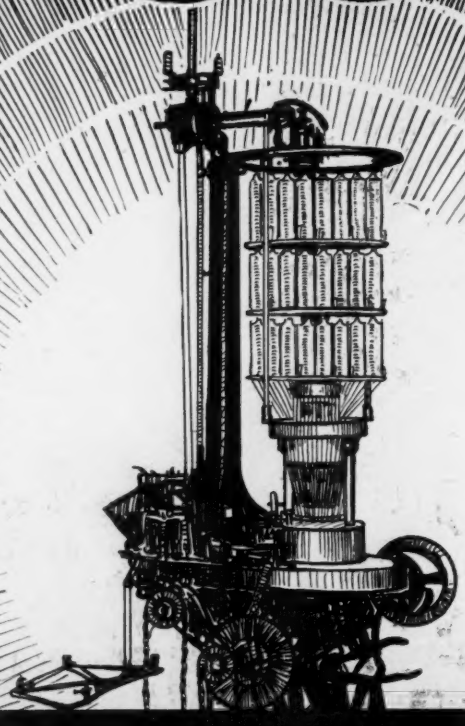

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20 to 1. The addition of one per cent to 1½ per cent of sulphonated castor oil or neutral soap to the dye bath is recommended as a leveling agent. If the water is hard, the use of a small quantity of 'Hydrosan' will be of assistance. In some cases wetting out agents such as 'Isomerpin' and 'Nekal A' have given excellent results. The dyeing is usually started at about 120 degrees F., at which temperature the addition of dyestuff is made. The temperature is gradually raised to 180-200 degrees F., depending upon the shade to be dyed. This rise in temperature should require about 20 minutes and the requisite amount of Glauber salts should be added shortly after the maximum temperature is reached. It is desirable to use as small a quantity of Glauber salts as possible, and, in the case of light shades, the use of salt is dispensed with entirely in a great many cases. The dyeing is continued at the maximum temperature until the desired shade is reached.

"One of the most important considerations in dyeing rayon underwear fabrics is the selection of the dyestuffs to be used. There are certain fastness qualities which must be observed and it is necessary to select dyestuffs which level out well. Very little trouble is experienced in dyeing the light shades requiring one or two dyestuffs. But, in the heavier shades where three or more dyestuffs are used, it is of the utmost importance to select combinations of colors which go on at approximately the same temperature and have about the same index numbers. We have found it desirable to dye the more difficult shades at as high a temperature as is practicable for the dyestuffs used.

"We have discussed the treatment of underwear fabrics with particular reference to circular knit fabrics such as are manufactured on Wildman or Tompkins machines. The growing use of finer deniers and finer filaments in rayon yarns has opened up the field of flat knitting, where the rayon is used either by itself or in combination with silk. Rayon fabrics of this type are very beautiful when finished and are exceedingly durable. The rayon yarn is prepared for knitting by first setting up the warp directly from oiled cones. When there is no cone creel available the oiled skeins are first wound onto spools, and the warp is then set up from the spools in the usual manner. In flat knitting, the choice of the oil to be used is even more important than in circular knitting as it is essential to keep the number of ends out down to the minimum. Flat knit fabrics containing mixtures of silk and rayon are usually degummed in a standing soap bath and are then dyed either on hand reels or on a regular reel machine in much the same manner as circular knit fabrics. Considerable variation in the luster of the finished fabric is accounted for by the degree to which it is stretched in drying on the tentering frame.

"In the treating and dyeing of hosiery manufactured from fine filament rayon yarns, the same care must be exercised as in preparing the yarns for underwear fabrics. There are even more exacting specifications as to the type of coning oil which may be used because of the fact that such a large portion of the rayon combination hosiery is boiled-off and dyed in the same bath. If a separate boil-off is employed the conditions and the materials used should be the same as on underwear fabrics. If a combination boil-off and dyeing is employed, it is desirable to cut down the quantity of alkalies used on account of their effect on different dyestuffs. The actual dyeing of rayon-mercerized-cotton-mixed hosiery or rayon-silk-mercerized-cotton-mixed hosiery should be done at a boil, or slightly under a boil. The dyestuff is all added at a temperature of 160-180 degrees F., and the temperature is quickly brought to a boil. After allowing about ten minutes for the dyestuffs to penetrate, salt is added and the boiling is continued for 15 to 20 minutes before sampling. The length of time for penetration is dependent upon the dyestuffs used and should not be any longer than required or poor unions may result. The proper selection of dyestuffs for hosiery dyeing is also one of the most important considerations. Only those dyestuffs should be used in making combinations which are known to have the desired characteristics for dyeing unions on rayon and mercerized cotton. It is usually not necessary to employ softeners after the dyeing operation on fabrics made from fine filament rayon yarns, but, if it is desired, they are usually applied in a rinse following the dyeing operation at a temperature of about 100 degrees F.

"Skein dyeing of fine filament rayon yarns is done in much the same manner that regular rayon skeins are dyed. Satisfactory dyeing can be obtained either by hand turning or on machines. The skeins are usually first wet out in a bath containing a small quantity of neutral soap. Dyeing temperatures employed vary with the shade to be produced, ranging from 120 degrees F. for light shades to 160 degrees F. for heavy shades. If dyeing machines are used, it is sometimes advantageous to use still higher temperatures. It is, of course, an advantage in winding that the shade should be reached with the minimum number of setins. Winding of the dried skeins is also improved by giving them a light spray with oil. Emulsifiable mineral oils are used considerably for this purpose.

"The drying of rayon, in general, should be carried out at as low temperatures as practicable. It has been our experience that a temperature of 130 degrees F. to 140 degrees F. is satisfactory for drying fabrics made from fine filament rayon yarns."

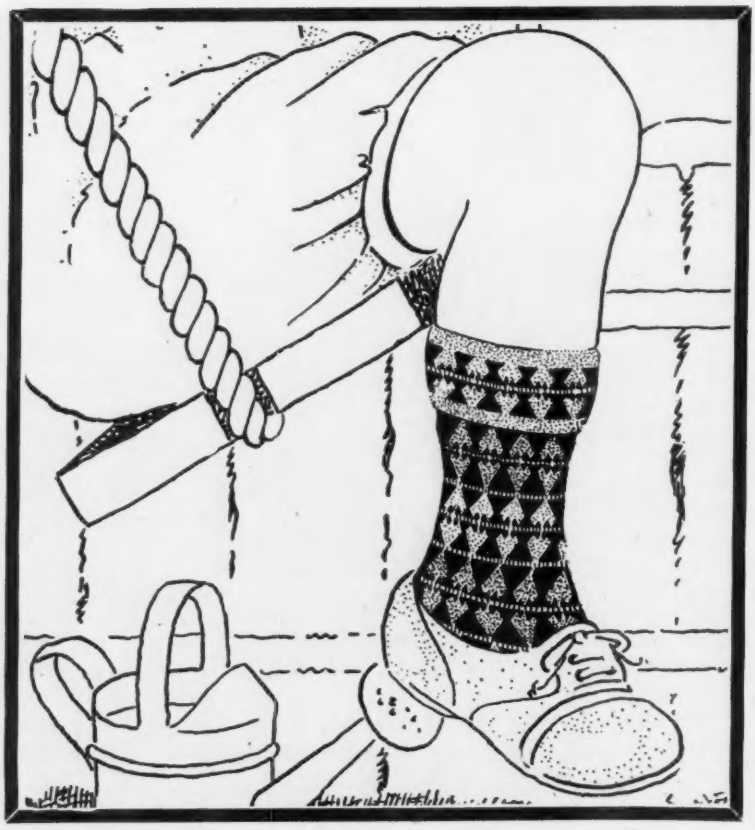
Report of J. O. Wells.

The concluding paper was the report of the legislative committee, read by J. O. Wells, of St. Joseph, Mich., who said:

"During the year the Association arbitrated sixteen cases. The rulings of the Arbitration Society of America were carefully adhered to, and all those participating in these arbitrations have commented on the fact that this is the most satisfactory and least expensive method of settling disputes that can be used in any industry to-day.

"The legal activities of this Association, from the viewpoint of court and Federal action, have not been very great during 1927, but, gentlemen, I warn you that 1928 will be another story. It seems to me that manufacturers are trying to bring nothing but disdain upon the hosiery and underwear industry by the type of marking that is being placed on some stockings to-day. The stocking marked 'Guaranteed Pure Wool' should be pure wool, and not 70 per cent wool.

"A stocking marked, 'Silk, Rayon and Cotton,' should be silk, rayon and cotton, and not one thread of silk carefully concealed in the welt, or used on the mock seam. A stocking marked 'Silk, Rayon and Wool' must have a percentage of wool in the body of the stocking that is worthy of being called such, and not one thread of wool in the toe. A piece of underwear made of cotton with a thread of wool



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Since eight step, six color patterns, like those illustrated, can be produced,—the manufacturer has countless salable patterns and color combinations at his command.

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Chattanooga, Tenn.

in the edging, or a thread of silk in the edging, does not permit a manufacturer to stamp his garment 'Wool and Cotton' or 'Silk and Cotton' or 'Silk and Wool.'

"While the abuse on marking has been rampant in the seamless industry during the past year, it seems from the result of some statistics gathered throughout the industry, and as a result of the analyses made in the Association office, that the full fashioned industry is about to receive a glorious baptismal of false and deceptive branding. Gentlemen, I am not here to discuss artificial silk, the various methods of manufacturing it, its qualities as compared with pure silk, but I am here to tell you that no artificial silk is silk, and that any marking used on a stocking, telling the public that it is made of silk, because it happens to be manufactured from some specially processed artificial silk, is pure and downright deception. To continue such practices, we are going to bring our product into disgrace with the public to the point where they will lose all faith in American products and will once again go back to stockings that are marked 'Imported' because the foreign manufacturer has not deceived in the matter of his labels."

George F. Dickson, of the Minneapolis Knitting Mills, Minneapolis, Minn., read the report of the nominations committee, and the officers, as previously reported in this story, were named. Mr. Dickson escorted the new president, Mr. Mettler, to the platform, where he expressed appreciation for the confidence and honor bestowed, and stated that the policies of the past would be continued under his direction. The convention then adjourned. At 1 o'clock the annual banquet was held, with suitable musical entertainment. Secretary of Labor James J. Davis was the luncheon speaker.

The Knitting Arts Exhibition.

Co-incident with so profitable a convention, the Knitting Arts Exhibition, held in the Commercial Museum from April 16th to April 20th, inclusive, was, similarly, a distinct success, and set a new record in exposition history.

This display, held annually under the auspices of the National Association of Hosiery and Underwear Manufacturers, and under the personal direction of Chester I. Campbell, brings together practically all of the manufacturers of knitting and knit-goods finishing machinery, supplies, accessories, chemicals, etc., into a comprehensive display of equipment and materials, which attracts the knitters of America to this exhibit.

Rayon occupied a prominent place in the exhibition, as has been the case for the past few years. Knitting, sewing and seaming, and dyeing and finishing, as well as other equipment manufacturers, gave recognition to the fiber in their own exhibits, while a large number of manufacturers, dealers, and converters displayed it in various forms.

Full-fashioned manufacture likewise was emphasized, there being one manufacturer maintaining a 42-gauge machine in operation during the show. Seamless machines for all classes of work were likewise in operation, embodying the latest developments and refinements in manufacture.

The attendance throughout show week was encouraging and satisfactory, according to a number of the exhibitors, and scores of the visitors expressed satisfaction at the character of the exhibits and the valuable information gained through the contact established by their visits. The crowd began on the first day, being composed mainly on Monday of knitters from the Middle West and Canada. The southern contingent arrived later, and, reflecting the trend of the industry to that section, predominated in number. There were a number of sizeable orders of many kinds of equipment placed during the week, in addition to the extensive contacts made, to result later in business.

The show opened on Monday, April 16th, and closed on Friday, April 20th. Power was shut off on Wednesday, during the session and banquet of the Association convention, augmenting the attendance at the meeting. There has been much favorable comment in recent years upon the more efficient schedule by which the show is being operated, and the management also was complimented upon arranging the sessions of the convention within the same hall with the exhibits.

General descriptions of some of the representative exhibits follow:

Aberfoyle Manufacturing Company, mercerized yarn department, Philadelphia, Pa., with plants at Chester, Pa., and Belmont, N. C., furnished and maintained their customary reception space for the convenience and entertainment of friends and customers. No display of yarns was made. Representatives of the selling organization were on hand.

American Glanzstoff Corporation, 180 Madison Ave., New York City, exhibited this year for the first time. Samples of hosiery, jersey cloths, tricot and milanese cloth, made from Glanzstoff rayon yarns, regular as well as multi-filament, were on display, a feature being full-fashioned hosiery made from Glanzstoff multi-filament yarn. Representatives of the company, and the Cotton Products Co., Philadelphia agents, were present.

American Laundry Machinery Co., Norwood, Cincinnati, Ohio, exhibited for the first time a new extractor of special design, and a new small Monel metal rotary hosiery dyeing machine. A new extractor, the O. T. type, designed for occupying small floor space, and for particular use on piece goods, raw stock and hosiery, was also displayed. George G. Rups, H. G. Mayer, R. C. Caine, and others were in attendance.

American Yarn & Processing Co., Mount Holly, N. C., maintained their usual reception space, exhibiting samples of their knitting yarns. C. E. Hutchison, Jr., David Whitehurst, and R. D. McDonald were in attendance.

Bachmann Brothers, 607 Commerce Street, Philadelphia, Pa., featured their "Flexalin" humidor for full-fashioned and seamless machines, as well as the "Flexalin" crystal welt hook, and welt rod, for full-fashioned work, this material being used, it was explained, to eliminate rust stains and damages to the silk. A. H. Redles and J. C. Crowther were present.

H. Brinton Co., 3700 Kensington Avenue, Philadelphia, Pa., maintained in operation an exhibit of the following machines: one 20-inch, four-feed, reverse plaiting sinker top machine; one 5½-inch, three-feed, selvage welt fancy top machine; one 3½-inch, cut foot machine; one 5½-inch, and one 4½-inch, three-color machine with trick wheel attachment; one 4½-inch two-feed, French welt machine making fancy tops; one 3½-inch French welt, two-feed, trick wheel rib machine, for making men's cut-foot half-hose; and one 3¼-inch two-feed sinker fancy top machine. H. S. Horrocks, secretary-treasurer, W. H. Allerton, Eric Cordon and J. R. Forrest were present.

H. W. Butterworth & Sons Co., Philadelphia, Pa., exhibited the products of their Klauder-Weldon Division, at Bethayres, Pa. One feature was a new type of lift hosiery dyer, a description and illustration of which will be found upon another page in this issue. Another feature was a new piece goods dye beck machine for silk and rayon piece goods. The points being emphasized about this machine were its all Monel metal construction, permitting ready changes of shade without rinsing, and an automatic stop motion connecting with a finger bar underneath the carrying roll for stopping the machine in case of tangles, etc. The company also showed their standard type of rotary dyeing machines in several sizes; in this line a new feature was a 42-inch diameter 100-pound machine, as well as the regular

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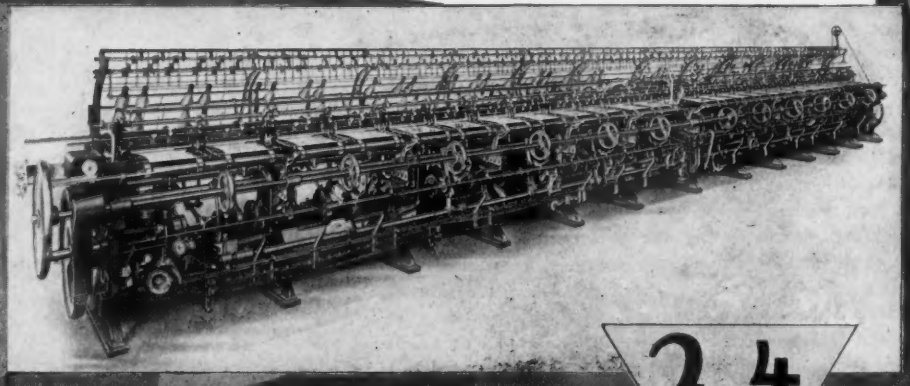

24 SECTIONS ALL GAUGES

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36-inch machine. A. W. Butterworth, president, Harry W. Butterworth, Jr., and J. Ebert Butterworth, vice-presidents; J. Hill Zahn, Walter D. Shields, W. E. H. Bell, superintendent and general manager of the K-W division, William Yates, Henry Higgs, Harry Lounsberry, DeHaven Butterworth, secretary, and others were present during the week.

Carolina Power & Light Company, Raleigh, N. C., exhibiting through their industrial bureau; featured a large map of North and South Carolina on which the territory included in the company's power zone was emphasized. Literature discussing the industrial advantages of the Carolinas was distributed. C. N. Rackliffe, M. T. Dunlap and J. F. McHugh were present.

Carrier Engineering Corp., Newark, N. J., had in operation one of the new "Carrier" unit air conditioners, for automatically controlled humidity, as well as the "Carrier" temperature control, and other products. Representatives of the company were on hand throughout the week.

Celanese Corporation of America, 45 East 26th St., New York City, displayed hosiery, full-fashioned and seamless, knitted men's underwear made entirely of Celanese yarn. The display also included garments of all sorts made from knitted Celanese fabrics, as well as a large display of men's half-hose. A. M. Burt, Philadelphia representative, was in charge, and R. B. Peacock, of that office, was in attendance, as were Messrs. Barnhardt and Morningstar.

Charles Cooper Company, Bennington, Vermont, featured their new 18-20 circular rib Cooper knitting machine, designed for silk, rayon, and fine cotton yarns. Also shown was the latest model collarette machine with striper attachment, and a full line of fabrics made from these machines. A full line of the Cooper high-speed steel, non-turnable rivet latch needles, as well as Cooper spring needles, was on display. Charles C. Kelley, sales manager, John J. Hayes, William T. Barratt, and George H. Rogers were present.

Cooper-Hewitt Electric Company, Hoboken, N. J., had on demonstration a Cooper-Hewitt light over a knitting machine and looper, as well as other interesting applications of the light in a knitting plant. Charles F. Strebig, sales manager, D. R. Grandy, R. B. Chipman, W. R. Flounders, and A. W. Willmann were among the representatives in attendance.

Dixie Mercerizing Company, Chattanooga, Tenn., exhibited, under the direction of Bart Pfingst and J. Blackwood Cameron, of Philadelphia and Reading. Also representing the company were George H. Ellis, vice-president, of Chattanooga, S. L. Diggle, of Charlotte, N. C., Fred W. Frank, of Chicago, and E. R. Kimball and W. B. Purse, of Chattanooga.

E. I. duPont de Nemours & Company, dyestuff sales division, Wilmington, Del., featured knitted and other samples showing their various colors. A complete range of colors, varying from delicate shades to deep tones, were graphically pictured by means of a reproduction of a pipe organ, which gave an excellent opportunity for displaying a harmonious blending of colors. Samples of materials demonstrating the use of duPont dyestuffs on cotton, rayon, silk and mixed goods were featured. R. A. (Bob) Carter, of the Philadelphia branch, was in charge, and representatives from the Boston and Charlotte offices, as well as the Wilmington headquarters, were also present.

Eclipse Textile Devices, Inc., Elmira, N. Y., emphasized their random dyeing equipment. A feature was a washing test between Eclipse-dyed yarn in knitted fabric and fabric dyed with alcohol, glycerine and dye, which had been witnessed by the Proctor & Gamble organization. Another feature was the display of skeins of rayon dyed by the company, in several colors, for making attractive designs. The Eclipse yarn cleaner was demonstrated on a Foster winder. J. C. Ferguson, L. A. Uttrich, J. P. Gary, and others were present.

Fidelity Machine Co., 3908-18 Frankford Ave., Philadelphia, Pa., displayed the following equipment: One 3-inch single feed Universal ribber with two-color attachment; making infants' two-color fancy tops; one 3½-inch single feed ribber with welt, loose course, selvage welt, plaiting attachment, making rib tops for half-hose; one 3-inch multi-design machine making four colors horizontally and ninety colors vertically, producing infants' tops, this machine containing the selvage welt attachment producing fancy striped tops; a 4-inch two-feed multi-design machine with welt, loose course and selvage welt making men's true rib half-hose and children's 3/4 and 7/8 stockings, the two feed attachment on this machine being one of the latest developments of the company. The company also displayed a 13 carrier four head No. 2 braiding machine making plain and elastic braid; a Thomas creasing machine with interchangeable dies for creasing and turning over the edges of pockets and other articles before sewing onto garments; the Helzen lubricator cone holder attachment, super cone thread guide, top cutter and Helzen "Stadjust" brake. H. W. Anderson, president, A. S. Johnson, Jr., A. Benson Davis, Walter Larkin, S. B. Blaisdell, Fred Thomas, William Longtin and Bert Sloan were in attendance.

Fletcher Works, Glenwood Ave. and Second Street, Philadelphia, Pa., showed a 48-inch vertical motor-driven extractor complete with automatic timing device, which embodied a number of new features. C. Wm. Schaum was in charge, and among those present were Fletcher Schaum, vice-president; W. H. Rometsch, Jr., assistant secretary and treasurer; R. J. Bartholomew, sales manager, H. N. Rahn, engineer.

The J. B. Ford Co., Wyandotte, Mich., maintained their customary exhibit of hosiery, rayon, Turkish towels, woolens and worsteds and other textiles which had been processed with Wyandotte textile alkalies, as well as samples of their various products. F. S. Klebart, John W. Turner, and H. E. Moyer were in attendance.

Foster Machine Company, Westfield, Mass., had in operation a Model 101 high speed winder, winding Foster knitting cones of mercerized, carded and merino yarn. Also shown was a Model 75 precise wind machine, winding silk and rayon knitting yarn on cones. This machine attracted the especial interest of silk throwsters, cellulose fiber manufacturers, and silk hosiery knitters. T. E. Connor, sales manager, D. W. Bridgman, C. B. Terry and R. W. Ensign of the sales department were present.

General Electric Company, Schenectady, N. Y., displayed much electrical equipment for knitting mills, including motors, switches, panels, relays, etc. The CR7006-D26 magnetic switch, suitable for throwing small alternating current motors directly across the line, and applicable for single-, two- and three-phase applications, was featured. One of the new BTA adjustable speed, alternating current, brush shifting motors was shown in operation. This motor, it was explained, has shunt characteristics, with a constant torque, and horse power output directly proportional to speed. The exhibit was in charge of C. P. McLaughlin.

Grosser Knitting Machine Co., 250 West Broadway, New York City, maintained reception space for visitors. Max Nydegger, and Messrs Winkler and Custer were present to greet friends. A visitor at the booth was Max Koehler, of the Julius Koehler factories, manufacturers of the celebrated "Conti-Record" looper, and a new improved full-fashioned seamer.

Hemphill Company, Pawtucket, R. I., makers of the "Banner" line of knitting machines, featured the "Banner" Jacquard machines, and their new re-inforced vertical stripe machine, with 8 independent colors, and the five independent step multiple cam attachment; also emphasized was the "Banner" pointed heel nib jack machine. A list of the machines in operation follows: one 4-inch, 120-needle Jacquard, making golf hose; one 3½-inch 220-needle Jacquard on half-hose; one 3½-inch 160-needle Jacquard on half-hose; one 3½-inch, 132-needle Jacquard on golf hose; one 2½-inch, 144-needle Jacquard on infant's goods; one 3½-inch, 240-needle, and one 3½-inch 200-needle re-inforced vertical stripe machine on half-hose; one 3½-inch, 240-needle latest multiple cam attachment for half-hose; one 3½-inch, 280-needle ladies combination with pointed heel; and one 3½-inch 240-needle half-hose combination split-foot machine. George McDowell, and others, were in attendance during the show.

Louis Hirsch, Inc., 556 Gregory Ave., Weehawken, N. J., with office at 1328 Broadway, New York City, maintained reception space for visitors. Louis Hirsch and A. Friedmann were present during the show.

Alfred Hofmann, Inc., West New York, N. J., sole distributors in the United States and Canada of the full-fashioned hosiery machines built by Schubert & Salzer Maschinenfabrik, Chemnitz, Germany, had in op-

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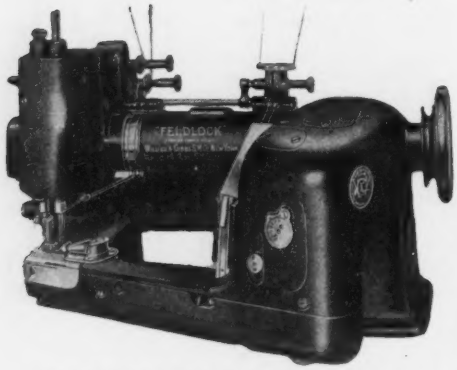

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eration a high speed, Type H.S.L. full-fashioned hosiery machine. A film showing the manufacture of this intricate machinery was presented during the week. A. Hofmann, C. E. Weinberg and E. A. Fuestel were in attendance.

E .F. Houghton & Co., Philadelphia, Pa., maintained a display covering their comprehensive line of oils, leathers, etc., for the textile industry. Of particular interest to knitters was an oiling display chart for oiling full-fashioned machines and one for seamless machines; a display of the company's rayon and silk oils, as well as samples of products upon which their materials had been used. J. Coleman Bentley, Herbert C. Roberts, H. G. Waldron, G. R. McCormick, C. A. Madden, C. H. Stonerod, W. A. Buechner, H. P. Canardy, and others were present.

Industrial Rayon Corporation, West 98th St. and Walford Ave., Cleveland, Ohio, showed samples of their current production of 150 denier and 300 denier bleached skeined yarn and 150 denier unbleached rayon on cones. A. A. Murphy, sales manager, and E. W. Knapp, of Philadelphia, together with other representatives, were in attendance.

International Nickel Co., 67 Wall St., New York City, maintained their customary exhibit of Monel metal and its products, featuring particularly the usefulness of this material in the construction of dyeing machines, etc. One point emphasized this year was the quick color changes permitted by the use of Monel. The usual line of commercial forms of Monel metal, moistening boxes for full-fashioned work, pails, dippers, portable mixers, etc., involving the use of Monel metal, were on display. E. A. Turner was in charge, assisted by J. N. Weldon and F. LaQue.

Kali Manufacturing Co., 1410 North Front Street, Philadelphia, Pa., displayed samples of their "Hydroxy" line of boil-off and other oils, "Developene," and other chemicals, etc., for use in the textile dyeing and finishing plant, emphasizing particularly their oils for winding rayon. James A. Branegan, president, and S. G. Davenport, secretary, were in attendance, and J. J. Donlen, Eugene Wall, Norman Maury and Russell Harris were also present.

Kaumagraph Co., 350 West 31st St., New York City, featured in their exhibit that 1928 is their Twenty-Fifth Anniversary. The display included all types of Kaumagraph dry transfers, including the new Kaumachrome process, a multi-colored transfer for decorative purposes, lithographed packing for the textile trade, transfers solvent and stain remover, electric transfer irons, stamping inks, transfer roll holders, etc. H. A. Keech, Philadelphia manager, was in charge. Among other representatives were G. M. Porges, vice-president and sales manager, M. E. Griffith, Charles Hall, F. X. Hess, J. L. Reeves, and Messrs. McIntyre, Bayles and Hutton.

Laurel Soap Mfg. Co., Tioga, Thompson and Almond Sts., Philadelphia, had a display of the "Laurel Brand" soaps and oils for dyeing, boiling-off and finishing knitgoods. W. H. Bertolet, Jr., C. E. Bertolet, J. E. Grimes, Robert Lampkin and Walter Gledhill were present.

David Lupton's Sons Co., Allegheny Ave. and Tulip St., Philadelphia, Pa., showed a complete line of steel textile equipment, including seaming and looping tables, work boxes, hosiery trucks and humidor cabinets, knitter's benches and bar topping tables, and Lupton steel shelving, embodying the latest features and designs. Frederick W. Eickhoff was in charge, assisted by Messrs. Leatherman, Brinton, Henry, Miller and Scott.

Armand May, Inc., Atlanta, Ga., had in operation a 48-inch direct-motor driven Amico oscillating centrifugal extractor, which they are marketing to the trade. This machine has been manufactured in Europe for more than twenty years, and is utilized by a number of rayon manufacturers abroad. The machine in operation was equipped with automatic starting and stopping, and timing mechanisms, as well as the approved safety features. Armand May, H. Koplin, L. Koplin, and Alfred Suter, special textile representative, were in attendance.

Merrow Machine Co., Hartford, Conn., in addition to their usual line of Merrow machines for seaming, hemming and plain and ornamental edge finishing, showed several new models. Among these were: Style 60-RD for edging rayon and loosely knit fabrics; Style 60JDC for flat elastic seaming on rayon underwear, and Styles 60-QA and 60-QB for pleasing variations of the small shell stitch finish done on Style 60-Q. There was also Style 60-ABB, a two-thread machine for trimming and joining simultaneously in a flat butted seam the ends of tubular knit goods for subsequent processes, such as bleaching, napping, dyeing and printing. The exhibit was under the direct charge of J. G. C. Merrow and O. W. Merrow of the Merrow Sales Corporation, 56 North 6th St., Philadelphia, Pa.

Mills Devices Co., Inc., Gastonia, N. C., showed two Boyce weaver's knotters running continuously throughout the week, driven by a motor-driven jig, at a speed of approximately 300 r.p.m. In this way, it was explained, the knotters received more use during the case than would be the case in a mill in years. There were other machines demonstrated on various counts of cotton, ranging from 23s to 150s; special rayon machines for 50 to 300 denier; and machines for real silk, three thread and coarser. C. E. Herrick, northern agent, Providence, R. I., was in charge. A. B. Carter, treasurer, and Roberts Tatlock, northern service manager, were present during the week.

Oakite Products, Inc., 26C Thames St., New York City, showed goods processed with Oakite, to demonstrate the finish secured with the use of this emulsifying detergent in connection with kier boiling. Samples of cotton hosiery, underwear tubing, and other fabrics, were displayed. Technical material regarding the application of Oakite to wet-finishing processes was distributed. Walter H. Cook, Arthur W. Perry, Frank Wall, C. W. Everson, and others were in attendance.

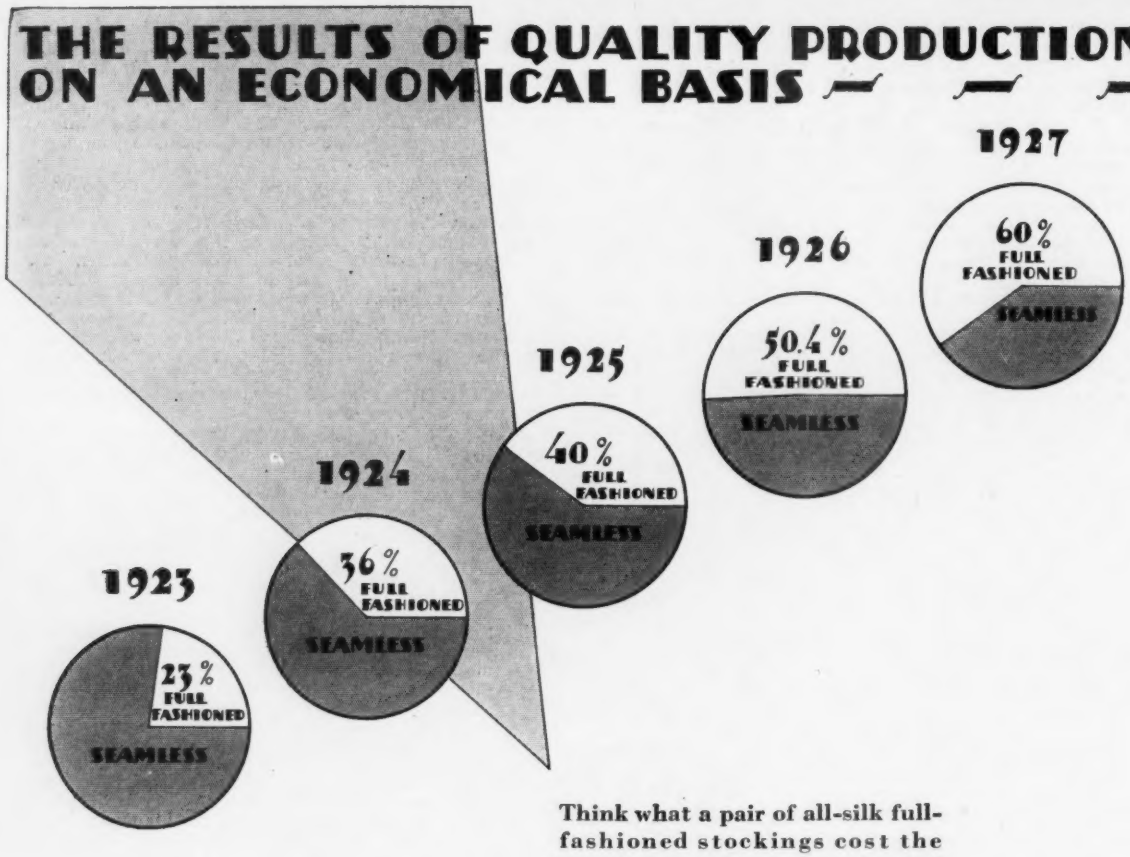
Philadelphia Drying Machinery Company, Stokely Street above Westmoreland, Philadelphia, Pa., showed their automatic hosiery drying machine, for use on all classes of hosiery, including infants', men's and ladies' goods. Also showed were the "Hurricane" dyeing machines, and the "Hurricane" electrically heated and steam heated hosiery drying forms, together with photographic illustrations of "Hurricane" continuous system of saturating, vacuum extracting, drying and carbonizing for piece goods. Thomas Allsop, president, W. W. Sibson, secretary-treasurer; C. H. Reumann, H. O. Kaufmann, H. Morshead, and E. L. Smith were in attendance during the week.

Philadelphia Metal Drying Form Co., Philadelphia, Pa., were showing for the first time the new "Adjusto-Combination" hosiery form, which can be operated either by steam or hot water. It was explained that with low temperatures desired for chiffons, and higher temperatures for service weight, a range of flexibility for both purposes is provided in the combination form. J. O. V. Stetten was in charge, assisted by Paul Guggenheim.

Proctor & Schwartz, Inc., Seventh Street and Tabor Road, Philadelphia, Pa., featured in operation the Proctor automatic hosiery boarding, drying and stripping machine, on three-thread chiffon hosiery with picot edge, which averaged 30 inches in length, showing the adaptability of the machine to long stockings. The hosiery was supplied by the Cambria Silk Hosiery Co., Philadelphia. One new feature demonstrated on the machine was a new type of "finger motion," especially adapted to chiffon goods, for stripping the stockings from the forms after the drying operation. Another new feature was an added device known as a "top loosener," which automatically loosens the top of each stocking on the board after it comes out of the dryer and before reaching the stripping mechanism, for the purpose of eliminating any undue stretching of the stockings in the stripping process, being particularly useful with stockings which are heavily scrooped before boarding. This exhibit also included the Proctor table hosiery dryer, a combined boarding table and drying machine, equipped with a new feature in the form of a complete Monel metal top. Major Charles T. Griffith, manager of the hosiery dryer department, was in charge. C. S. Tiers, H. G. Mayer, of Charlotte, and others, were in attendance.

Rockweave Mills, LaGrange, Ga., through their canvas products division, showed their line of baskets, trucks and hampers suitable for knitting mill use. Among these was a conditioning or steaming basket, the frame of which is made of galvanized steel, with copper rivets. A typical basket was exhibited together with a photograph showing it supporting a bale of cotton and three men, a total weight of 932 pounds, to

THE RESULTS OF QUALITY PRODUCTION ON AN ECONOMICAL BASIS



Think what a pair of all-silk full-fashioned stockings cost the wearer twenty-five years ago—and what they cost her today! Yet the manufacturer pays more for his silk this year than he did in 1903.

What's the answer? Machines!

Machines capable of turning out merchandise of uniform high quality day after day, year after year, without interruption.

Machines whose low operation and maintenance costs yield the greatest possible revenue from a very small margin of profit.

Quality production on an economical basis!

TEXTILE MACHINE WORKS
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FULL-FASHIONED KNITTING MACHINES

demonstrate the sturdibility of construction. L. C. Lippincott, manager of the division, Dan Carroll, and John Finn, sales survey manager, were present.

Rodney Hunt Machine Co., Orange, Mass., showed through their representatives, R. C. Jefferson Co., models of their reel machines. Mr. Jefferson and other representatives of his organization were present.

Scott & Williams, Inc., 366 Broadway, New York City, exhibited a complete line of seamless hosiery and underwear machines. The Model K on exhibit contained several new features, 280-needle and 300-needle machines being shown producing lace stockings, including "fish net," as well as lace clocks, using the floating stitch method. Machines so equipped, it was explained, are so constructed that the floating stitch method may be discontinued and plain Model K stockings produced. The machines were equipped with fashion marks and reduced heel attachments. Another new feature on the Model K was a toe guard in the double sole. An attachment for producing a narrow high splicing above the heel of the stocking, in the popular "panel high spliced heel" or "French heel" was a feature. Novelty half-hose was featured on Model HH and Model K machines fitted with spiral floating striping attachments, etc. The usual plain machines and the Model RI rib to toe ladies' and misses' stocking machine, as well as golf hose machines, were also in operation.

A feature which attracted considerable interest was the showing, for the first time, of a semi-automatic means for transferring the rib top on men's half-hose to the cylinder needles of the footing machines. The transfer point ring is set in position by hand, the operator pushes a lever and the machine does the rest, it was explained. The company's new fine-gauge balbriggan machine for silk and rayon fabric, as well as their plain rib body machines, was shown. Harry Swinglehurst, president, Frank Smith, H. Richardson, southern representative, and others were in attendance.

Smith, Drum & Co., Philadelphia, Pa., were displaying a complete line of hosiery dyeing machinery, including several new models, as well as their skein dyeing machine for rayon and silk. Harry Drum, W. C. Dodson, and other representatives were present.

Sonoco Products Co., Hartsville, S. C., featured their "Velvet Surface" bottle bobbin, also showing cones, tubes, cloth cores, dyeing-package tubes, etc. C. H. Campbell, W. B. Broadbent, L. F. Shurtleff, and W. A. Biggs were present.

Standard-Coosa-Thatcher Co., Chattanooga, Tenn., showed samples of mercerized combed yarns, and were represented by R. J. Mathewson, W. H. Thatcher, G. S. Carney, W. C. Henderson, Charles F. Smith, J. P. Rickman, Earle R. Dillmore, and others.

Standard-Trump Bros. Machine Co., Wilmington, Del., and James Building, Chattanooga, Tenn., and 366 Broadway, New York City, displayed their latest machines featuring their reverse plated model, their ladies' fine-gauge machines and a Hirner foot model. There was a total of seven machines: one 4-inch, 144-needle reverse plating golf hose machine; one 2½-inch, 156-needle reverse plating infants' sock machine; one 3½-inch, 220-needle reverse plating half-hose machine; one 3½-inch 160-needle half-hose machine for operation on wool; one 3¼-inch, 172-needle reverse plating cuff top machine; one 3½-inch 176-needle Hirner foot machine, and one 3½-inch 300-needle hose machine. F. H. Thomas, vice-president, H. S. McInnes, southern representative, W. L. Houseman, and H. E. Houseman, secretary, and Maurice L. Frost, of the New York office, were present.

Textile Machine Works, Reading, Pa., manufacturers of full-fashioned machinery, maintained reception space for visitors, many of whom were conveyed to the plant at Reading for demonstrations of the company's equipment there. William F. Mueller, Max Mueller, and N. E. Richards were in attendance for the company.

Tolhurst Machine Works, Inc., Troy, N. Y., had in operation a 48-inch center slung, open top type, hydro-extractor, driven by an attached vertical motor, with automatic electrical control. The basket was specially prepared for handling silk hosiery, etc. A timing device was mounted on the machine. With this attachment, when the extractor is started, the timing device may be set for any length of run from three minutes to 45 minutes. At the end of the period for which it is set, the device will automatically open the motor circuit, apply the band brake and signal the operator by a bell and a red light. W. C. Dutton and R. K. Cheney, vice-presidents, and John McKeon, of Troy, N. Y., were present.

The Torrington Co., Torrington, Conn., were featuring their new needles for full-fashioned machines, as well as the established lines of latch knitting and sewing machine needles. A large map of the world, located in the booth, showed the location of the different manufacturing plants, sales branches and sales agencies of the company, to graphically illustrate the extent of foreign business done by the company. In attendance were A. Klinkoski, E. K. Brown, W. L. Morgan, W. T. Bell, C. Rowe, F. W. Deming, and L. J. Ross, from Torrington; H. D. Blake, southern representative; W. F. Moon and William Myers, New York, and W. C. Wiechardt, J. W. Sullivan, P. S. Warner and W. G. Schick, of Philadelphia.

Tubize Artificial Silk Company, 303 Fifth Avenue, New York City, maintained reception space, and also displayed underwear and hosiery made of Tubize or of Tubize in combination with other fibers, H. N. Cappel, Philadelphia representative, was in charge.

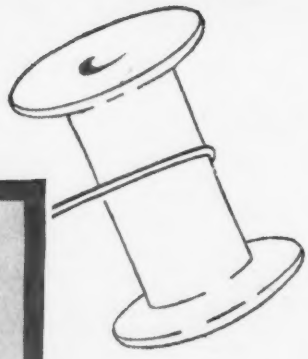
Universal Winding Company, Boston, Mass., in view of the broad adaptation of rayon to the knitting industry, emphasized their machinery for handling this material. One machine was equipped to wind the rayon direct from skeins to cones; another winding it over-end from spools, drawing it through an emulsion and then winding onto cones for use on knitting machines; another demonstrated a new adaptation for winding direct to a paper cone of large diameter, on which practically two pounds of material was wound direct from skeins. This new type of delivery for knitting machines is termed the "Jumbo" cone, and is especially adapted for plaited and full-fashioned work, it was explained. A No. 60GF cone winder was shown adapted to winding merino and to wind the new material spun from waste rayon. Frank J. Quinn, resident agent in Philadelphia, was in charge, and a number of executive officers and salesmen also attended during the week.

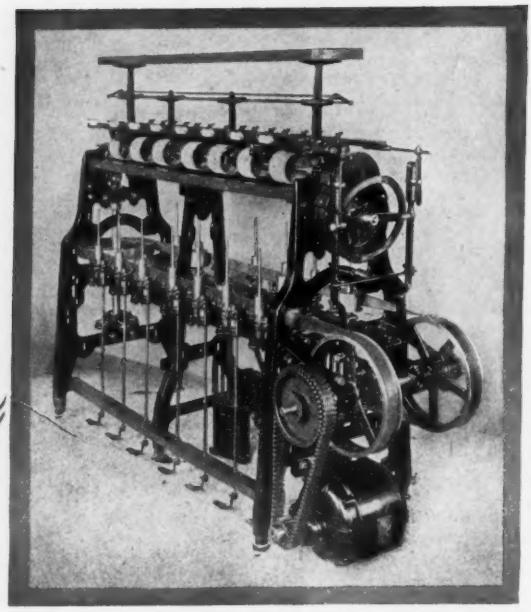
Veeder Mfg. Co., Hartford, Conn., had in operation a full line of textile counters, featuring especially the course counter for full-fashioned work, as well as length and yardage counters for circular machines and other textile equipment. R. H. James was in charge, assisted by Mr. Rasmussen, from the Hartford factory.

Wildman Manufacturing Co., Norristown, Pa., maintained their usual operating exhibit, with rayon being emphasized in connection with the body machines displayed. Among the machines in operation were: one 28-needle spring needle machine, and one 34-needle spring needle machine making rayon underwear fabric; a rib striping machine, making striped rib bathing suit material; a 300-needle, 3¾-inch spring needle hosiery machine producing silk hosiery; a similar machine making ladies' silk hosiery with a pointed heel; a ribber equipped with four color striper, making infants' hosiery tops; a ribber on half-hose tops; and a rib machine equipped with wheels, operating on the dial needles, making necktie fabric. At the Wildman plant in Norristown, near Philadelphia, a 42-gauge, 24-section full-fashioned machine was demonstrated to visitors attending the show. Kenneth Howie, general manager, F. E. Paul, D. C. Bellas, J. J. Brennen and others were present.

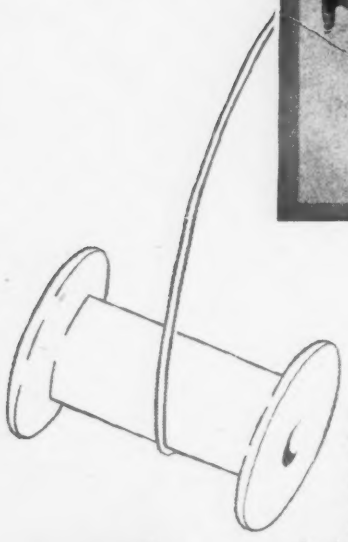
Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York City, demonstrated in operation the "Flatlock" machine for seaming and ornamenting knit and athletic underwear and similar garments, together with the "Feldlock" machine for shirts, pajamas and underwear seaming. The lockstitch, overlock, and chainstitch shell scalloping machine, also Cornely and Uniart embroidery machines were on display. G. M. Lewis, manager of the Troy office, was in charge, assisted by A. E. Selby, manager of the Philadelphia office. R. E. Thompson, manager of sales development, and L. E. Sichel, from New York, were also present. Demonstrations were conducted by Misses McCristall and Gundaker and Mrs. McLoughlin.

The Yarns Corporation of America had a display of rayon and novelty yarns. R. Grisman, president, I. J. Aibel, vice-president, M. Mindlin, treasurer, S. Gross, secretary, L. M. Brodie, assistant sales manager, and H. Schwartz and C. Goldstein, sales representatives, were present.





The Atwood B H Spinner is, in point of sales, the most popular Rayon Twister being manufactured today.



A Sturdy Twister
That Speeds Rayon Spinning

By the adaptation of silk twisting principles to the peculiar requirements of rayon manipulation, The Atwood Machine Company has moved the greatest obstacle in the path of uniform twisting at high speed.

The B H Rayon Twister, pictured above, is one the Atwood sturdy "Models of Perfection" which has advanced the production of rayon by increasing capacity for its conversion.

A number of singular features distinguish this popular twister. The spindles of the B H whirl upwards to 7500 R. P. M., releasing uniformly twisted threads with delicate accuracy. Even tension take-up pulleys draw and spool the ends smoothly on the take-up bobbins. Located at a convenient height, Atwood designed, self-oiling spindles ease the work of operators while doffing. Adjustable tension girts permit the use of long delivery bobbins on flyers.

The B H Frame is unusually rugged in construction, being adaptable for handling heavy rayon or artificial silk mixtures. it may be fitted with either horizontal or vertical motor drive. A reversible cross-head changes the direction of twist without changing direction of motor. Ball-bearings in the drive, foot-end and take-up shaft bearings put this twister in the class of conservative power users.

The Atwood B H Spinner is, in point of sales, the most popular Rayon Twister being manufactured today.

Write for the B H Spinner descriptive leaflet.

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The A B C of Dyeing

Bleaching with Chlorine; Some Experiences of Past Years in Using Chloride of Lime and Soda Ash on Cotton

By NOEL D. WHITE.

PART TWELVE.

A few weeks ago I was having lunch in company with three men prominent in the dyeing trade of the South. As it is natural when dyers happen together, the conversation drifted to dyeing, and one man said: "How is it that, in all my experience of a good many years of contact with dyers, I find that every one has some pet way of doing his work—and it is so hard to make him change? It seems to me that there should be a right and a wrong way to do it, same as anything else; yet every one seems to get along in his own way and putting it over."

Another one said: "That is so because up-to-date dyers have learned their trade in some dye house under some old codger who has his own tricks, and naturally the younger man learned from the older, and kept the old routine going. With more young ones going to textile schools and studying dyeing, there will in time come a class of dyers with standardized ways and the old style will gradually disappear."

The third man spoke up, and said: "I doubt that there will ever come a time when all the dyeing will be done in the same standardized way. Even in text books you see explained different ways of doing the same thing. Take the boiling of cotton. Some say boil in a kier under pressure; others say it is done better in an open kier. My personal experience is that both ways are wrong and the boiling out could just as well be eliminated altogether."

Such a statement coming from a man who is very prominent in the cotton dyeing industry of the South was worthy of consideration. If any operation of such importance as boiling out cotton could be eliminated, and yet obtain good results—then see how much waste of time and material the other dyers were making. Yet I could not offer any criticism because my line was not cotton dyeing. Cotton, with me, always came as an adjunct. I had specialized on silk and I thought my opinion was not worth expressing there.

However, that started a train of thought that carried me back to the time I was serving as apprentice in a big dye-house, where they dyed everything from jute to the finest silk. Here cotton was dyed in large quantities, and as I had to learn every phase of the business, I had to serve for sometime in the bleaching department. As it happened, I liked that part better than any other, so I spent nearly three years there. Now as I look back to those days in the last decades of the last century, I can see how the third speaker could be right in a measure.

In those days dyeing was mostly done with vegetable dyes, such as Lockwood, Fustic, Brazilwood, Indigo, Ebony, etc., and some few minerals like alum, salts of chromium, iron, copper, lime, litharge, etc. Of course, then the cotton had to be prepared with care to be dyed with the dyes we had, but I remember well how we used to do the boiling out. We put a bundle of cotton on a wooden peg a little at a time, we rolled it in handfuls and passed a string through ten handfuls, and tied the ends. It was quite a trick to tie the different knots to keep the lots separate, and as I look back and see how many different lots we could crowd together with nothing to tell them apart, except a knot tied in a different way, I can't help but wonder that we never had any lots mixed—while it is so hard to keep the different sizes separate now that there is but, at the most, six to keep separate with pins, strings and checks.

We did the boiling in a jacketed copper kettle to hold about 400 pounds. The kettle was filled up with water and boiled, then 20 pounds of soda ash was dissolved in it and the cotton entered. The hardest job was to wet it, and push it under, but when all the goods were under this boiling bath they were left to boil for two hours slowly and constantly, then rinsed and whizzed ready for further processing. The dark colors and black were brought to their respective department; the light colors and white were brought to the bleaching room.

When the first direct colors were brought into use the colors that could be dyed with these new dyestuffs were not boiled at all. The first of this line of dyes I remember well: Benzo Purporine, immediately followed by Congo Corinth, a darker red. We had two standing vats for these colors, and the cotton was put on sticks direct from the bundle and the lot put in the bath prepared with the dyestuff and salt necessary, given three turns to wet them good, and then a turn once in a while for one hour, then wrung out and whizzed without washing.

It was a most convenient and cheap way of dyeing red when you consider that previous to the advent of these dyes, it took nearly two weeks to dye cotton red with the turkey red process; but this new red did not displace the older method by any means except for cheap work and where fastness was not quite necessary.

As other direct colors came into the market, we made use of them and dyed them without previous boiling of the cotton if we could avoid it; but we had very few colors where we could avoid it.

First of all, most of the cotton we had was of a darker grade than we have now and except for very dark shades it required a full or a part bleaching, and of course as bleaching on cotton was done only with chloride of lime, the goods had to be boiled out well. It seems to me that with the low cost of bleaching with the peroxides, and since peroxide bleaches better when a little on the alkaline side, that it could very well be done now without any previous boiling, in that case, my friend who believes in eliminating the boil-

AMICO

THE ORIGINAL UNDERSLUNG
LARGE EXTRACTOR
(U. S. PATENTS PENDING)

EXTRACTION Is an Asset in Your Mill—

AMICOS will turn mill liabilities into assets so far as extraction is concerned.

In more ways than one. In the thoroughness with which AMICOS extract water and moisture, for example—saving time, trouble and labor in further drying.

In the economy with which extraction is accomplished, due to speedier production, less labor and attention needed, and low power consumption. One 48″ AMICO will usually do the work of three old type 30″ extractors—with obvious saving in labor, time and power!

And, by no means least, is the safety AMICOS give to this work. No chance for injuries to operators. The AMICO is not only ordinarily safe—it is *truly fool-proof.*

The AMICO is the only extractor with the one lever control safety feature. One lever controls starting and stopping. Cover cannot be opened when machine is running—or machine started until cover is closed.

That's another liability turned into an asset.

Better get the full details. On request—gladly.

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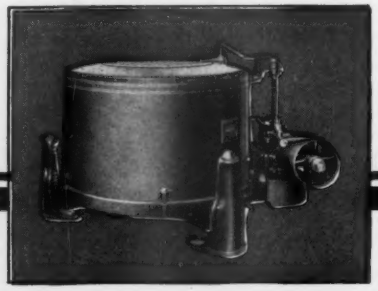


5 H.P. Motor Starts a 48″ Amico Extractor!

ing out altogether may be right at that.

As I said before, I am not an expert on cotton dyeing, any therefore if any one has anything to offer in this line it will be highly appreciated.

Now to return to our work, when the cotton was delivered to the Bleach Room, we divided it in one hundred pound batches, if possible keeping all colors in the same batch and the white by themselves. We prepared our bleach bath with ten pounds chloride of lime powder, dissolving this in water and straining through a sieve right into the bath; then added six pounds of soda ash dissolved in water, and the bath was made lukewarm. The goods were entered and given five turns, then if not bleached enough for a good bleach, the bath was made a little warmer and the goods entered again. Ten turns usually was enough for a good bleach. For Egyptian cotton, and we had a lot of that, the amount of chloride of lime and soda was increased to twelve pounds, and the soda ash to eight pounds, then the goods were washed in two rinses of cold water. Next in a bath with a dipper of muriatic acid at 100 degrees F. for five turns, and again two cold rinses, and then soaped. This work was carried on with considerable speed. The goods were not allowed to rest except in the rinses. It was claimed that the air had a deteriorating influence on the cotton when impregnated with the chloride of lime, or the muriatic acid, and for that reason the work was carried on with the utmost dispatch. The cotton that had to be dyed white, pink, lavender, or light blue, were dyed in the soaping bath. All others were distributed to the respective departments to be dyed. This dyehouse had an enviable reputation for good work.

Some years later I happened to go to work in another dyehouse where there was much cotton to be bleached. Here the man in charge had another way of bleaching. He claimed that if the chloride of lime was sifted into the bleaching bath, some lime would adhere to the fiber and it would be impossible to wash it out. Accordingly he dissolved the chloride of lime and soda ash in two big barrels the night before he wanted it, and in the morning he would decant the clear solution to use and throw away the settlings left in the barrels. I told him how we saved work and material doing it the other way, but he must have thought we did not know our business and kept doing it his own way. Now, were we doing it wrong? If so, how is it that we got on so well and never had any complaints, and no rotted cotton that I can remember?

Some years ago I had a job in a Pennsylvania ribbon mill. It was in 1912 to be exact. I was called upon to bleach some cotton to use in the ribbons. Naturally, I used the method I had learned in my apprentice days, and had no trouble whatever with it. I have some samples of that work pinned in a book, and I just thought I would like to investigate it and see if any harm had come to that cotton during the years I have kept it.

It is now just as strong as when first bleached, but a little creamish and I wonder if that can be the result of leaving the lime in instead of decanting the clear liquor to use in the bleach bath. I am more inclined to believe that it is the blueing which has disappeared, and nothing else. That blueing was Methyl Violet, and that is a fugitive color and very likely to fade after sixteen years.

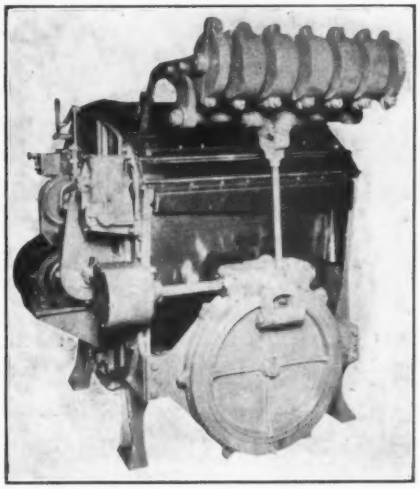
In recent time, other and more up-to-date methods of bleaching cotton have come into prominence. Where continuous and large quantities of bleaching is carried on, liquid chlorine and chlorine gas are available, easy to handle and very efficient, with special tanks and machinery constantly improved; but that constitutes a trade by itself and is usually done by experts who have no need of my advices; also is beside the scope of these articles.

What I set out here is for the benefit of the average dyer, who may have occasion to do some bleaching once in a while like I have in the past; and in this case, my advice is to bleach with the peroxide of sodium or hydrogen for good and safe results.

New Lift Type of Hosiery Dyeing Machine.

The new Klauder-Weldon lift type rotary hosiery dyeing machine, designed for giving greater control of all factors in dyeing, has been developed by the Klauder-Weldon Dyeing Machine Division, H. W. Butterworth & Sons Co., Bethayres, Pa. This machine was shown publicly for the first time at the Knitting Arts Exhibition in Philadelphia in April.

This machine has the same cylinder construction used in the regular rotary type of Klauder-Weldon machine, the same Monel metal construction being used. Its design, the manufacturers point out, permits a gentle or increasingly drastic action by raising or lowering the cylinder, corresponding to raising or lowering the liquor level, allowing



the dyer to take advantage of a standard condition as to liquor level and formula condition. Thus, it is pointed out, the dye can run a higher liquor level and produce a gentle action; the reel can be run low in the liquor for a considerable period, giving the equivalent of running with a higher liquor level, it is explained, and making for an opening up of the goods and better penetration. The machine is also especially adaptable for handling re-dyes and troublesome colors, it is stated. An easy loading and unloading condition is provided, and a standardization of formula is permitted. The machine has a flexible applicability from fine chiffons to heavy work, it is pointed out.

Frost Now With Standard.

Maurice L. Frost, who enjoys a wide acquaintance in the knitting industry, has become associated with the Standard-Trump Brothers Machine Company, of Wilmington, Del., and is located in the company's New York office.

Production Plus-

The requirements of modern production placed on knitting machinery—more strenuous than ever before—are easily met with the COOPER LINE of Spring Needle Knitting Machinery.

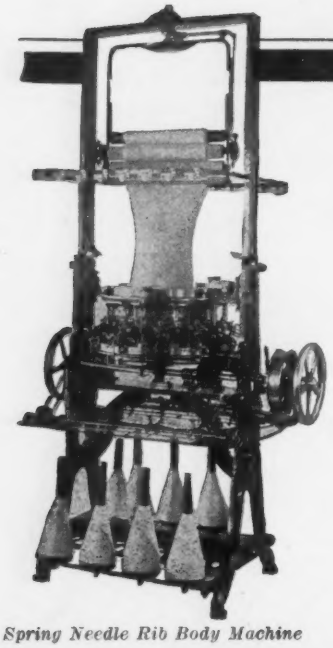
The new 18-20 Model Cooper Multiple Feed, Circular Rib, Spring Needle Knitting Machine with stop motion not only turns out work at maximum speed, but does it perfectly. Best of all, this knitter has the strength and stamina to continue this performance indefinitely.

Especially built to knit fine cotton and wool, silk, artificial silk and rayon yarns. Send for samples of fabrics produced on this model.

Spring Needle RIB KNITTING MACHINERY

Oldest Makers of Spring Needles in the United States

From a hand-made, sparsely produced needle, the Cooper Line of Spring and Latch Needles has grown with the textile industry into one of the most complete in the United States. As the first manufacturers of Spring Needles we have retained a life-long prestige—accounting for the fact that Cooper is to needles what Sterling is to silver.



Spring Needle Rib Body Machine

Charles Cooper Co.

Machine and Needle Works

Bennington, Vt.

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ELBROOK, INC., 50 Peking Road, Shanghai, China, Agents for China and Japan.
M. BUCHSBAUM, Calle Alsina, 1814 Buenos Aires, Argentina

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any partcular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

How Should Guides on Underwear Machines Be Set?

EDITOR COTTON:

I have a question I would like to submit to underwear manufacturers through your "Knitting Kinks" department. I am running 13s/1 yarn of not very good quality on a 10-cut machine using 36-gauge needles. I find that by setting the guides close to the needles, the thick places in the yarn catch on the cheek of the needles, causing the yarn to cut where the stitch is being made. If I set the guides sufficiently far away from the needles to prevent this, I am troubled with drop stitches on the cylinder needles.

Any information which your readers can suggest as to means of eliminating these difficulties would be appreciated.

CONTRIBUTOR NO. 4006.

What Size Yarn is Best for Full-Fashioned Looping and Seaming?

EDITOR COTTON:

Through "Knitting Kinks", we would like to ask what experienced full-fashioned manufacturers recommend as the proper size looping and seaming yarn for a seven strand 42-gauge stocking. We have been using 50s/2 Holmes spun yarn, but have recently had a criticism from a more experienced manufacturer to the effect that the seaming thread was too heavy. We would be interested to know the experience of other manufacturers.

CONTRIBUTOR NO. 4008.

Overhauling Knitting Machines.

EDITOR COTTON:

In a recent number, one of your contributors asked for the experience of your readers as to the procedure and cost of overhauling knitting machines that have been in use for a period of time, by whom this work is done, in what part of the mill, and what equipment in general is needed besides the parts.

It is almost impossible to say anything about the cost of such an overhauling, as this will vary with different types of machines, and also depends somewhat on the condition of the machines to be gone over, but in general the cost should be only the price of new parts plus the time involved and the lost production, if the machines are running at the time.

If fixers are employed on a time basis, and are at all competent, they can be utilized for this work by taking one machine at a time, in conjunction with their regular job, and going over it very carefully and thoroughly. In this way the element of time will be minimized in the cost of the overhauling. The machine can be placed right on the line near the fixers' section so that all spare time can be utilized to advantage.

This is not the quickest way to get the job done, but it works very satisfactorily in a small mill where extra men are not available. If the mill is very large, a special place with skilled men is perhaps the best way. The machine can be taken to the repair shop, worked over and repaired, tested out thoroughly and placed back in the line for use. If the machines in question are second hand ones and are to be overhauled and brought up to date as far as new improvements are concerned, the cost will very probably be equal to the cost of a new machine when the parts, time, and price of the used machine and new attachments are all added. This has been our experience in buying used machines and bringing them up to date.

The equipment needed is not very great, as all the parts for all makes of machines are interchangeable, or very nearly so, and a good grinding wheel, polishing wheel and emery cloth, along with the few handy tools, that the average fixer has, is about all that is required. I might add that the fixer should also have in his kit, or cranium, a little good judgment, well oiled and ready to be applied.

In regard to the procedure of the work, I mention some of the things to be gone over on the Scott & Williams machine, and in a general way these will hold good for most any make of machine. First, I believe in cleaning and polishing the various parts of the machine as the work progresses. This adds an atmosphere of neatness, orderliness and quality that leaves a good wholesome effect on those that are doing the work, and all that come in contact with the machines.

Haven't you been in mills where the very cleanliness and orderliness of everything made you feel that only

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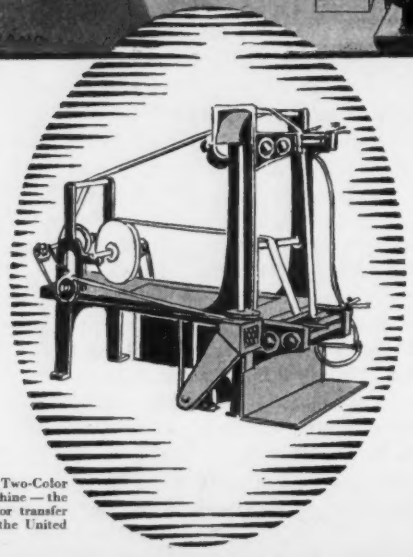

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make so many products?

A HOSIERY manufacturer wanted to apply his trademark in such a way that it couldn't come off no matter how often you washed it. So Kaumagraph developed the Permanent Transfer.

A textile concern wanted to mark goods in the gray by some method that would keep the mark clear and legible even after the goods had been dyed. So Kaumagraph developed the White Dye-Resist Transfer.

It occurred to a mill agent that if he could remove his own trademark from his goods at will, he would be enabled to fill rush orders for private brands. So Kaumagraph developed the Fugitive Transfer.

These are only three instances among many that typify how business has come to depend on Kaumagraph as headquarters for the solution of identification and trademarking difficulties.

How well Kaumagraph has justified this confidence is indicated by the wide variety of Kaumagraph products, a few of which are pictured in these pages.

Every one of these products was developed in response to a definite need of the industry! Almost without exception they are made *exclusively* by Kaumagraph.

Practically every company, large or small, in the entire hosiery, textile, silk, glove and leather industries, uses Kaumagraph Transfers and only Kaumagraph Transfers. They know they can lean on Kaumagraph for assistance on special requirements. While on their day by day needs they have learned that they can depend on Kaumagraph as on no other source for maintenance of quality, prompt deliveries and superlative service.

Are you making full use of Kaumagraph's facilities? Are you fully acquainted with them? If not, our new 56 page book "Half the Business Battle" will prove mighty helpful. It contains not only an outline of Kaumagraph's many services and products, but useful information to any business firm that owns a trademark or has an identification problem. We shall be glad to send you a copy on request.

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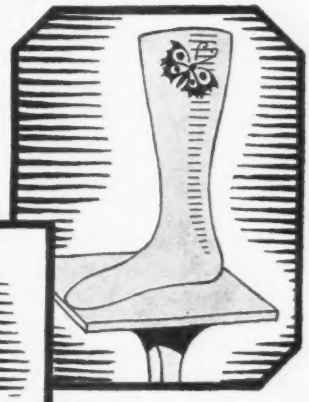
and a new office in Chattanooga, Tenn.



Kaumagraph Decorative Transfers—obtainable in two-color and multi-color designs, they answer the growing demand for novelty effects, as for decorating hosiery on the knee or ankle.

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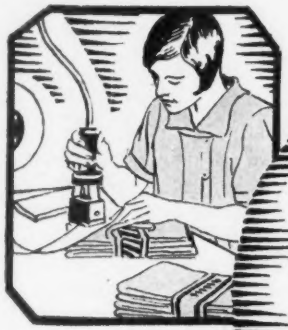
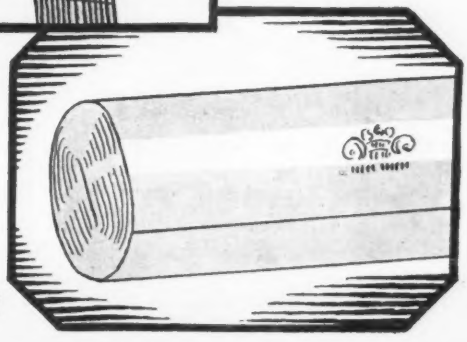


Kaumagraph Regular Transfers—the standard method of trademark application for ordinary purposes on textiles, hosiery, silk, woolens, underwear, etc.

Kaumagraph Solvent—created originally to remove transfers applied by error, it is now widely used in textile and hosiery mills to remove grease spots and stains from fabrics.



Kaumagraph White Dye-Resist Transfers—resist dyeing when applied to goods in the gray.

the very best of work could come from such a place? Sure you have, and all of us human beings feel and act alike, more or less, when we come under the same influences and conditions, so have the machines looking well when they are completed.

If the machines have been in operation very long, the needles and sinkers should by all means be replaced with new ones. This may seem like a very heavy expense, but experience has taught that new sinkers and needles will often pay for themselves in a very few weeks through the saving of waste and seconds. The cylinder should be examined thoroughly and all slots straightened out, the walls smoothed and new ones put in where needed. It should be seen that the sinker rings are tight on the cylinder and that the slots therein are not broken or bent and that they are free from dirt before new needles and sinkers are put in; also, that every cylinder wall is tight.

Next in order is to take out the cam ring, go over all the cams, smooth and polish them where this will be sufficient, and where necessary, put in new parts, especially the stitch cams if they are worn or have been ground. If at all doubtful as to whether the stitch cams are o.k., by all means install new ones, as this is one of the most vital points of any knitting machine. When new ones are installed have the left hand cam three or four thousandths of an inch longer than the right hand one to allow for the greater amount of wear on the run down side. Also check the up-picks to see if they come down in the new cams properly. Examine the gear ring spline and see that it is fastened securely to the gear ring.

Now for the lower parts of the machine. If the main bushings and clutch pinions are worn very badly new ones should be put in. Do not fail to look over the auxiliary, chain and main pawl plates for wear on the ends. They should be dressed up neatly on the ends, especially the chain pawl plate. There will very likely be a small projection on the one side which did not wear. This should be ground off along the side of the plate, which will leave it that much narrower than when it was new, but that is necessary, because the pawl will be found to have worn considerably in the socket, which gives it quite a lot of lateral movement. By taking this amount off the side, the plate will not ride on the tops of the high chain links and put the machine out of time or make the stocking too long. If the machines are the type that have a dial, the dial bracket should be checked to see if it centers up properly. This is very important in order to have the dial jacks or needles to line up with cylinder needles. Also look over the cam brackets of the dial for any excessive wear.

Now for the trouble on the Scott & Williams K, 220 needles, working on wool. The writer says he has trouble with the yarn pulling apart while knitting. I wonder if he has tension on this yarn. If he has, this should be taken off, or at least reduced to a minimum. If plaiting is being done it will be necessary to have some tension on the one yarn, but this should be just as little as is consistent with good plaiting. The yarn fingers should be examined for grooves, which appear very quickly from the use of wool yarns. Also, it should be seen that there is plenty of clearance between the yarn finger and throat plate for ordinary sized knots and irregular places in the yarn to pass through without breaking the yarn. Sometimes, reconing or rewinding the yarn will help materially in this matter.

Regarding the yarn tensions, the Scott & Williams make is as good for all around work as any that we have come in contact with. They have two kinds, No. 24330 completely assembled with bracket, etc., and No. 7392-Y.

What are the proper speeds for hosiery machines to get results?

It is always better to run machines a little slow rather than too fast, if one is looking for low waste and a small breakage of needles. The average of production will be just as great also. Speeds will vary with the different machines:

S & W Model R	I's	36 gauge	200 to 210 r.p.m.
S & W Model H	H	48 gauge	210 to 215 r.p.m.
S & W Model	K	54 gauge	210 to 215 r.p.m.
S & W Model	K	36 gauge	220 to 225 r.p.m.

The Standard machine can be run up to 300 r.p.m. in some gauges and needles.

The Banner machine can be run in the same range of speeds as the Scott & Williams.

I trust these few thoughts will be of assistance to "Contributor No. 1004" in the planning of the work he has in mind

CONTRIBUTOR NO. 992.

Overcoming a Crocking Color.

EDITOR COTTON:

I noted the question of "Contributor No. 985", in a recent issue. He said he was dyeing heavy socks with direct black, with formaldehyde and acetic acid after-treatment, and was experiencing difficulty with crocking on this work, while on lighter goods using the same methods this trouble did not appear.

It has always been our experience that the heavier the goods are, the more tendency they have to crock when dyed with direct black. However, it is possible to remedy this crocking condition somewhat if sufficient care is taken in thoroughly rinsing the material after dyeing. Sometimes a light scour will help in this connection. In the after treatment of direct black dyeings, it has always been our experience that the use of chrome in addition to formaldehyde often improves the final fastness.

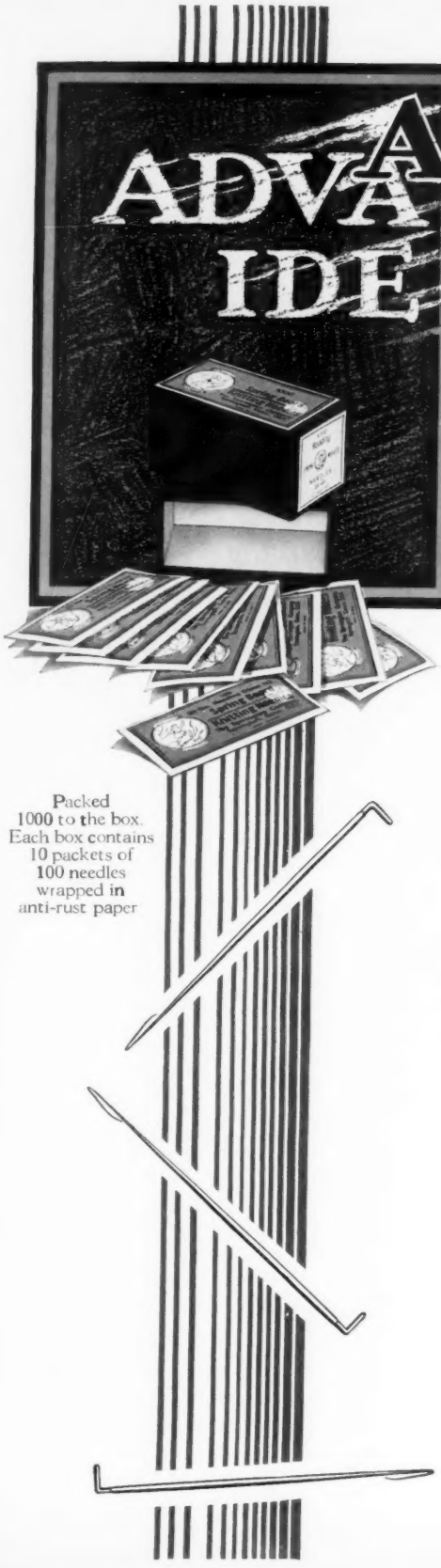
A. C. (N. Y.)

EDITOR COTTON:

With reference to the question asked by "Contributor No. 985" on color crocking on heavy goods, will say, it would have been easier to advise this contributor as to the reason for his men's heavy socks crocking after being dyed with a direct black and after treated with formaldehyde and acetic acid, if he had stated what direct black he uses and how he proceeds with his dyeing operations.

I may assume that what he uses is a good black dye, because he admits that in dyeing his finer work that trouble is not manifest. On that assumption, it is safe to say that in dyeing his heavier goods he does not wash them long enough, and leaves some loose dyestuff there to crock after finishing them.

That is the main trouble in dyeing dark colors and black; they have to be washed properly if a good clean job is expected. In the finer grades of goods that is easily ac-



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That is a partial explanation of Torrington ability to incorporate exclusive features in Full Fashioned Needles. The other reason is found in sixty years of leadership based on skill in precision manufacture.

Torringtons are remarkably accurate in formation and dimension, closely meet requirements of uniformity, and are easier to prepare for actual knitting. These advantages are reflected in a superior quality of production, with an increase in quantity as well. Differences which easily justify their use.

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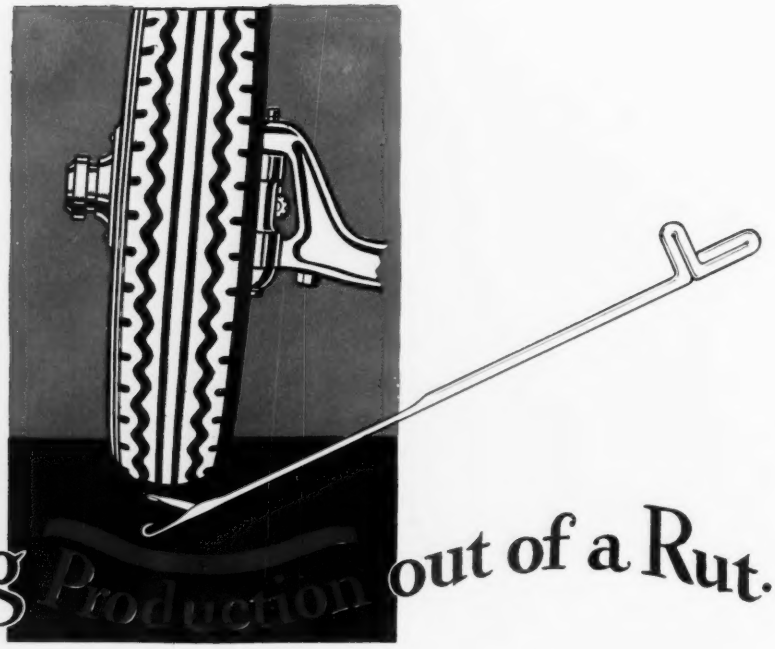

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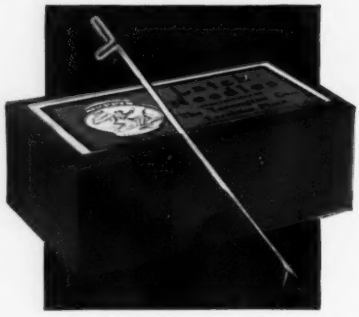
Then put Torrington Needles on the job. If needles can do it, Torringtons are a panacea for ailing production. For the work they turn out passes the most exacting inspection.



There is a smoothness to them, a fine temper, the perfect uniformity, that modern knitting conditions demand. Torringtons are standard for accuracy, too. All in all these are needles that help lift production out of a rut—and keep it on a quality basis.

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complished, but with the heavier, coarser yarn, particular care must be exercised to have all loose dye washed out, and I believe if this contributor would see that the washing is done properly this trouble will be eliminated.

It is also possible that this contributor neglects to properly scour his heavier hosiery before dyeing them. Any grease, natural or otherwise, that may have been left on the wool before dyeing, will crock when the goods are finished and dried. Here again the coarser fiber is likely to receive less attention when it should have been treated with more care than with the finer goods.

Also in dyeing mixtures with wool, care must be taken not to use too much salt, as an excess of salt tends to precipitate the dyestuff, and bronzy effects are obtained which invariably results in the goods crocking.

A good way is to start the dyeing at 120 degrees F. and raise to 160 degrees F. for a half hour. The cotton will dye best at this temperature; then raise to boiling to dye the wool for another half hour and the dyeing should be complete if the proper amount and quality of dyestuff has been used. If the wool at this time should be not deep enough, a little addition of acetic acid will readily raise the depth of color on the wool. If on the other hand, the cotton should not be dark enough, a longer working in the cooling bath should be all that is necessary, or an addition of dyestuff in the cooler bath should be made.

With the proper precautions as to scouring and washing, and the proper amount of dyestuff and Glauber's salt, there is absolutely no reason why the heavier goods should crock when the finer does not.

CONTRIBUTOR NO. 2828.

EDITOR COTTON:

In the March number you published the following question:

"We are dyeing mens' socks, knit from wool and cotton, with direct black, after treated with formaldehyde and acetic acid and are having trouble with the color crocking. We are dyeing ladies' and men's fine hose in the same way and have no trouble with those."

The usual cause of crocking, in my opinion, is the addition of too much salt before adding the formaldehyde and acetic acid in the future treatment. This excess of salt precipitates the dye on the outside of the fabric, causing the crocking. If I can furnish any further information in answer to this question I shall be pleased to do so.

S. S. (PA.)

EDITOR COTTON:

This answers the question of "Contributor No. 985" who said in the March issue that he was having trouble with a direct black crocking on men's heavy socks, knit from wool and cotton, after being treated with formaldehyde and acetic acid. He said he is dyeing ladies' and men's fine hose in the same way without this trouble.

He gives no information as to the percentages of wool and cotton fibers in the heavy socks, and does not give the nature or method of finishing after being after treated with acetic acid and formaldehyde or the percentages of these products used in the after treatment. The general method of after treating direct blacks is at 120 to 140 degrees F., using 2 to 3 per cent acetic acid (28 per cent), and 2 to 3 per cent formaldehyde, running for half hour at the temperatures mentioned.

There is a possibility that he is using hard water and that he has no way of softening it. This will naturally lead to crocking caused from the formation of various magnesium and calcium compounds with the soap and finishing oils used in finishing up the blacks after the formaldehyde after-treatment.

In case he has hard water, I recommend an addition of ½ to 2 per cent acetic acid (28 per cent) to the dye bath containing the direct black, the amount of dyestuff should be increased 25 per cent. The use of common salt is not recommended with wool. 20 per cent Glauber's is recommended, with the dyeing carried on at about 190 to 200 degrees F., for 1¼ hours. Time can be shortened on experimentation. And ½ to 1 per cent acetic acid is recommended on soft water for this type of hose. 1 per cent acid black for the wool is helpful in giving it a lustrous black. The dyeing bath should be dropped, with two cold washes of five to ten minutes duration. Then the after-treatment, at 130 degrees F., using 2 to 3 per cent acetic acid (one-half the amount of formic acid can be used) and 2 to 3 per cent formaldehyde. Run 20 to 40 minutes, drop, give thorough cold wash, then warm wash at 130 degrees F. Finish at 100 to 110 degrees F., for 10 to 30 minutes, using 1 to 3 per cent neutral olive oil soap or finishing oil for direct blacks, and ¼ to ½ per cent sulphonated olive oil. When the black has been sampled and the proper luster is obtained, drop, and extract thoroughly and promptly. Otherwise there is a tendency toward soap spots to occur, which are similar to crocking.

T. S. (TENN.)

Fixing and Fixing Methods.

EDITOR COTTON:

I just received my copy of the January issue of COTTON, and to me it seems that everybody is taking a "pot shot" at poor "Pete(N.C.)" because he criticized, in the November issue, some of Harry Miller's suggestions on the Model K and Model R I machine, in the booklet, "Knitting Kinks Handbook No. 1."

I have been reading COTTON for nearly a year, and it seems that people from every state in the Union are shooting at Harry Miller for two or three mistakes he had in his handbook. Now if these were all the mistakes that Harry made in his entire book, then I think he should be complimented for his one hundred and one good suggestions rather than condemned for his two or three mistakes.

I agree with "Pete" that many cams are discarded that could be used and that many cams are made shorter by so-called fixers when the drum is out of time, but bear in mind that it is seldom ever the case that the same fixer fixes one section of machines all the way from the factory to the junk pile and after some beginner goes and cuts a cam for a certain place on the drum and an experienced fixer discovers later that the drum is slightly out of time and puts the drum in time correctly, he will invariably have to make a new cam and this is probably what Harry refers to in regard to cutting off the cam.

It seems that some people have gotten the idea that when they get the little book, "Knitting Kinks Handbook", they will have a "cut and dried" set of rules for fixing Scott & Williams machines. This is not the case. If it were, Harry Miller could quit the mill game for the remainder of his days and live off of the royalty on his book.

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Difficult colors cannot be reproduced evenly in yarn spun with cotton gathered from many sources.

For our customers we meet this condition by buying our cotton of one select grade . . . spin it entirely within our very strict specifications . . . and mercerize it by our own particular mercerizing process that has made American Yarn a standard for quality—strength—uniformity and beautiful lustre.

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American Yarns allow a standardization of your processes as well as give you every style possibility a mercerized yarn can impart. Incidentally, our mercerizing makes the original yarn *stronger*. This is important.

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Hosiery mill managers would buy them at almost any price and save the expense of teaching fixers.

A great many of the readers of COTTON remind me of a young man who had just started learning to fix when we first heard of COTTON and the little handbook. He subscribed to COTTON in order to get the little book, and every day he would ask, "Have you heard from our books yet?" One night he had a job on a very old machine, and had worked for about an hour without any results. Finally he said, "Doggone, I sure will be glad when my little book gets here. My worries will all be over then." Harry Miller is just human like all the rest of us, and if we can learn one or two good points from all the suggestions in his little book, it will be worth many times the price of a year's subscription to COTTON.

In regard to cams getting too long, this does not happen but even a case-hardened cam will wear and have to be replaced with a new one. In timing up a drum I would suggest putting the set up cams in the proper place and likewise the transfer cam, timing the machine so it will go through these two moves correctly and then build the remainder of the drum to this, and then I doubt if there will be a cam that will get too long for a long while. If the drum is timed so it goes through these two moves properly, then the only thing to be done with the other drum cams is to cut them off or put on longer ones as the case might necessitate. This, of course, refers to the Model K machine.

If "Pete" has been promoted from fixer to superintendent he naturally thinks his methods of doing things are correct and Harry, likewise, thinks he is right and in many instances he is right, so what do we gain by shooting at either of them? If we can find only two or three or four things in the whole book to argue about, let's talk about some of the good things in it, and see if they aren't more interesting to the readers.

R. V. P. (TENN.)

Cut-Outs on the B-5 Machine.

EDITOR COTTON:

In the January issue, "I. W. (N. C.)" discusses cut-outs on the B-5 machine caused by lost motion in the drum in starting in after the machine has transferred. He explains that with this lost motion caused by wearing, if the machine is turned until the latch ring goes down and starts to knitting, there will not be much trouble with cut-outs. However, he adds, the knitter will trip the belt shifter, and down goes the latch ring and the spring pulling on the latch ring, and the weight of it starting with such force, and when it gets to a point just above the needle, prevents it stopping at the right place, and it moves the drum. As a remedy for this he recommends cutting a wedge of soft pine wood and driving it in the drum from the back side between the machine frame and the drum, just over the gear that turns the drum and just tight enough to hold the drum tight.

It would seem to me from this that somebody has too much pine, or has not given sufficient thought to the matter. The machine people might object to an infringement on a patent, and this might cause him trouble. The government is staging a vital campaign to preserve forests, and likewise they might object. Henry Ford has just changed from a wooden wheel to a wire wheel on his new car, so if "I. W." is going to start everyone using wooden drum brakes, that will consume as much wood as Henry saves.

Of course I hope it is understood that that paragraph is written in jest, in order to impress the point. The Scott & Williams drum brake is made of very strong spring steel with a leather facing or brake shoe, and when it gets worn it is an easy matter to take the brake off and put on new leather, and if this does not make it tight enough, the brake can be placed in a vise and sprung toward the drum with a hammer, which should give all the friction necessary and last much longer than the "pine pole wedge." If any of the readers of COTTON disagree with these remarks, I shall be glad to read their comments in some future issue.

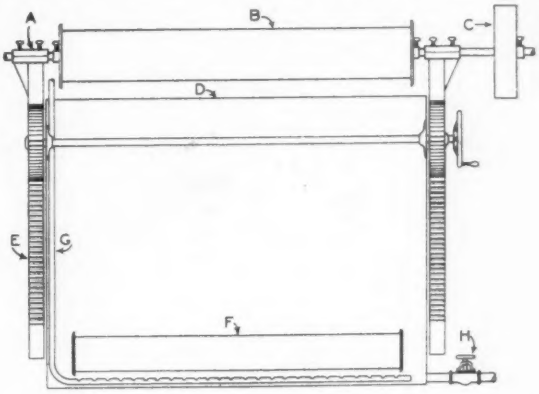
P. S. (TENN.)

An Adjustable Dyeing Machine.

EDITOR COTTON:

Of late many hosiery mills have been making fancy top hosiery, using random or zebra dyed yarn. Following is the description of a dye tub in which skein yarn can be dyed, any length, and it will not cost much to fix it up.

In the sketch, *A* shows the bearings. These bearings should be arranged so as to easily remove the top caps. In other words, drill holes through the heads of the cap screws in order to make them practically thumb screws. By removing the top caps of the bearings this allows the removal of *B*, which is a roller on which the skeins are placed to be dyed. Provide flanges on each end of the roller so



as to prevent the skeins from running off in case the skeins are to be dyed all over. At *C* is the driving pulley on the shaft that runs through the roller. This is used, of course, to drive the roller, providing the skeins are to be dyed all over. The tub is shown at *D*. On each side of the tub at *E* are seen the gear racks to the top of which the bearings are cast or fastened, and that are held to the tub by adjustable brackets, not shown. These brackets have a set screw to be used in holding the roller at a certain depth. At *F* is a brass pipe provided with flanges, and this pipe is run through the skeins and prevents the skeins from floating upward.

Rack gears are used to raise and lower the skeins by means of the racks so any length on the skein can be dyed. To raise and lower the skeins there is a hand wheel on a shaft fixed to the tub at the top and a spur gear to cor-

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respond with each rack. These rack gears and racks will work freely when the bracket set screw is loosened.

A perforated steam pipe as at *G* can be arranged to suit the local conditions.

If ten inches in length are to be dyed, use a rule and measure the skein and tie the skein with a string at this point. Put the skeins on the roller *B* and the pipe roll *E* and then use the hand wheel to either raise or lower, as the case may be, to get the proper adjustment in the dye liquor.

H is a quick opening drain valve.

The writer believes that anyone on fancy tops can use this outfit to great advantage. H. H. W. (GA.)

Computing Costs on Full-Fashioned Hosiery.

EDITOR COTTON:

I have been reading with interest the article on "Accurate Costing on Full-Fashioned Hosiery", by C. H. Baxter, on page 181 of the December issue of COTTON. This writer gives an outline of a method for figuring the cost of full-fashioned goods. In my opinion, his article has considerable merit, and it is evident that Mr. Baxter is a practical knitter. I emphasize the word knitter for, as I read the article, the author proves his thorough knowledge of hosiery by his analysis of the component physical parts of the product, and by his treatment of the processes of knitting and their respective costs. It seems to me, though, that he covered the dyeing and finishing processes rather vaguely, and these in themselves present a problem in costing.

It happens that in the same issue of COTTON, on page 200, you published a letter from me representing an answer to one of your inquirers as to a method for computing costs on full-fashioned work. Since my viewpoint is that of the specialized accountant on hosiery work, and Mr. Baxter represents the angle of the practical manufacturer, I am taking the liberty of commenting upon his discussion and the subject in general.

Outside of his scanty treatment of the finishing processes, which I have mentioned, Mr. Baxter's discussion of the analysis for cost of materials is thorough and excellent. His discussion on waste is also worthy of note, and I am pleased to see that his ideas agree with those advanced in more abstract form in my own letter in the December issue, emphasis being laid on opposite methods in each case. He lays stress on actual weights of waste, while I emphasize volume tests. I find that we also agree on methods of applying labor costs, although these would be subject to greater refinement in actual practice. His application of overhead is (with apologies) to an accountant rather crude, but for general purposes, as used by him, it would give fairly accurate results.

My opinion generally of his article is that it furnishes an excellent method of arriving at a specification cost for particular grades of hosiery, and there it stops. I take the liberty of quoting from my own letter in the December issue: "Combining the three factors of material, labor, and overhead, after having subjected them to refinement, a cost of manufacturing will be obtained which will permit of a fair degree of accuracy." This is as far as Baxter goes.

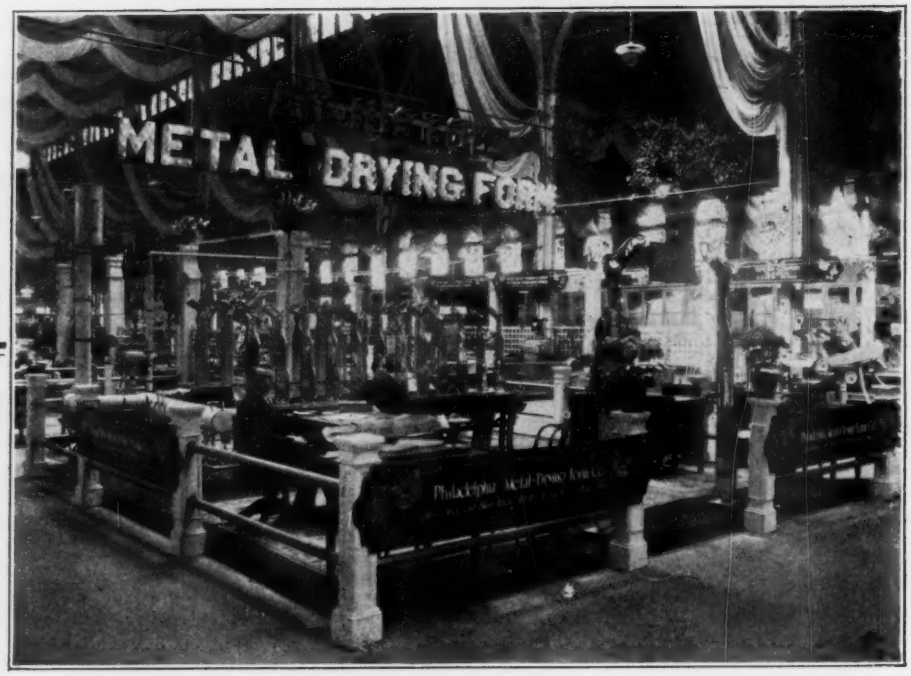
Up to two years ago, this was entirely adequate for the costing needs of the full-fashioned hosiery industry, for previous to that time the demand so far exceeded the supply that every possible bit of production could be sold at a handsome price. More recently, however, the rapid expansion of the industry, without a corresponding increase in demand, has placed sales on a basis of keener competition with much narrower margins of profit, and the question of costs constantly increases in importance. Therefore, as I endeavored to point out, the matter of proving costs and coordinating them with current financial records to ascertain the amounts and sources of profits and losses, is becoming absolutely necessary.

Permit just a little explanation: Profits or losses in any manufacturing business should be viewed from three angles, namely, from production, from expenses of operating, and from sales of finished goods. You know that manufacturing processes and costs fluctuate from period to period, and that costs based on the results of one given period would differ from those of the one preceding or the one following. You also realize that it is impossible to regulate selling prices to meet these fluctuations. (This would exclude material costs in cotton mills, but would include them in hosiery.) Therefore, to arrive at accurate and dependable costs, these variable factors of production and operating expenses must be standardized. The matter of standardization of material cost was covered to a certain extent by Baxter in his article. Now, if his labor costs and overhead costs had also been established on given standards of production and of operating expenses, he would have had a more nearly accurate specification. The standardization of production is a matter of study in each individual mill, although equivalent volumes may be reasonably expected from similar units in different mills. The standardization of labor costs and operating expenses is entirely a matter of study in each case, and budgets therefor are established to cover the standardized volume of production.

Having predetermined the volume of production to be expected, and having applied the budgeted expenses and the analyzed costs of material and labor thereon to arrive at the specification costs, you can readily see that an excess or recess from this volume would result in a profit or loss which, extended at these specification costs, would reflect the profit or loss from production in dollars and cents. Furthermore, an excess or recess from the budgeted expenses would also be reflected, by comparison with the actual, in dollars and cents. Having an established specification cost, the profit or loss from the sales can be itemized and shown by grades or units. It is perfectly logical that the profits or losses occurring as a result of the fluctuation of production and expenses should not affect the specification cost, but should be applied against the aggregate result, to adjust itself from period to period. Thus established costs are maintained, and sources of profit and loss are revealed.

The production figures also reveal the efficiency of the various operating departments, and permit of more effective control of operations. The management reviewing these figures, has before it a picture of the activities of the mill, can lay its finger very readily upon any strong or weak point, and is in a position to instigate an intelligent investigation to correct defects.

The budget comparison figures permit of the ready regulation of operating expenses, and automatically reveal excessive expenditures by any productive department or



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For one thing there is no tendency to "overheat" or dry out the fabric before the stocking is set properly on the form. Thus the natural "life" of the silk is preserved, the wearing qualities protected, and a softer, more lustrous finish is assured.

At the Knitting Arts Exhibition the interest in this new HOT WATER-LOW TEMPERATURE method was far beyond our expectations. Mill men were quick to see the advantages of a controllable heating system that gives uniform and positive heating of forms BELOW steam temperatures.

The Philadelphia Metal Drying Form Company offer the latest development of this new method and ask you to consider its advantages before deciding on new drying and finishing equipment, as your old equipment can be made over to this system with slight expense. Write today for further information on this interesting new system of heating forms.

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by the administrative division. The management again has a picture from which to intelligently draw its conclusions and direct its course of action.

The revelation of profit or loss from sales, by grades or units, permits of the intelligent direction of selling efforts. Stress may be laid upon the more profitable items while others, less profitable, may be dropped or continued only as a matter of accommodation for the trade.

All of the comparisons can be rendered monthly, and the management is constantly and intelligently in touch with all phases of its business. The mechanics of establishing such control are not greatly involved, and require no more effort on the part of the operatives than would ordinarily be expected. In fact, they result in better regulated production, less confusion of details, and increased efficiency on the part of all concerned. Again I take the liberty of quoting the last paragraph from my letter in the December issue: "The day of guess-work has passed. The use of accurate, scientific methods has become essential to the continued success of any business."

H. P. (PA.)

Lubrication Problems in Knitting.

EDITOR COTTON:

The writer has read with interest the correspondence which is published in your magazine COTTON. We would like to offer some suggestions in relation to the lubrication problems involved in knitting machines, especially in relation to needle oils.

The first consideration is, of course, that the needle oil used must be a lubricant. As there are many excellent lubricants on the market which are capable of properly lubricating the needles and sinkers, we can naturally assume that the problem of lubrication is easily solved.

As to the prevention of oil spots on knit goods, the first essential is, naturally, to keep the oil from getting on to the finished product or the raw materials from which the product is being manufactured.

Having made the assumption that various oils for the purpose are equal in lubricating properties, we may now state that they are not all equal in their ability to stay put on the needles and sinkers.

If we take a high grade water white lubricating oil of the proper viscosity and absorb that oil into a porous sponge-like mass which is a lubricant in itself, we obtain a material which not only provides the maximum of lubricity but also the ability to stay put and not throw off upon the manufactured article. These absorbed oils accomplish the following from the standpoint of lubrication:

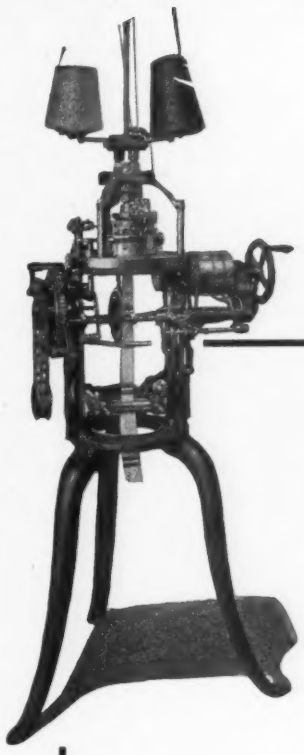
From their ability to stay put, they require less frequent application to give first-class lubrication.

As they are not readily forced from the moving surfaces, they maintain the lubricating film for a maximum of time and thus prevent wear.

If we now combine along with these other properties the ability to be readily removed from the fabric when the inevitable spotting occurs, we have an ideal lubricant.

Actual practice over a period of years in the knitting industry has shown that the statements mentioned actually work out in practice as outlined.

CONTRIBUTOR NO. 996.



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We will be glad to furnish information of our complete line.

YOU save time and money when you outfit your mill with Brinton machines—each has already been tested in practical production before it comes to you. That means cutting down installation and readjustment delays.

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The Yarn Market

Philadelphia, Pa., April 11th, 1928.

Events leading up to the month just past in the Philadelphia cotton yarn market produced a situation very dull and lacking in outstanding features. The last week of the previous period had progressed with trading in yarns generally spotty, and asking prices considerable under pressure, with no apparent influence in yarn values or activity of the somewhat stronger position of cotton itself. Producers and market dealers were arranging that production of yarns would be taken care of to prevent an excessive stock to further depress the market, but all in all, things were dormant and uninteresting.

The first week of the four-week period preceding this writing opened up on a situation in which many spinners and dealers had stiffened values over the week-end, and the moderately higher levels achieved were maintained, in spite of the fact that buyers continued to ignore the market except for small-lot trading. In the movement during this week, it appeared that combed yarns showed more activity than carded numbers; and that counts for knitting mill consumption received more attention than did those going into specialty and other weaving trades. The market by no means was healthy, and there was some report that producers who had been fortunate in buying cotton were passing along the differential in the prices of their yarns with the result of a varied list of quotations for the same product.

As the week progressed, inquiry did broaden considerably, particularly for carded counts, but while there also were more orders, they remained of the small size variety of which it requires a large amount to result in volume. It seemed the general attitude of the market's customers to wait until they had secured business for their own plants before making known here their yarn requirements.

The next week began with no particular difference in prices, but with a rather noticeable increase in interest on the part of buyers. It developed that the market was in an apparently well liquidated state, regarded as especially encouraging since local stocks were light in the face of lack of considerable business over the past few months. No distress yarns seemed evident in great quantities, and while hand-to-mouth buying methods seem to be permanently established, the normal demand of business, even in this manner, does pull volume ultimately. Wide differentials in price continued, especially unfortunate in view of the narrow margin of profit existing in yarns. As an indication of the general position of the market, it appeared that carded yarn rates were about one cent below the general levels prevailing three months ago.

A moderate readjustment downward in rates opened the next week. This was of a scattered nature, and affected carded yarns above 20s mainly; some of the finer numbers of combed yarns in single and ply also experienced a slight weakening. After a nominal decline, however, prices exhibited stability at the somewhat lower levels.

During this week it developed especially that there were instances of yarn prices being out of normal relation to raw cotton prices, and it was evident that those numbers whose prices were nearest in line with current staple values were showing the most strength. Throughout the entire week, however, the general tendency of the prices in the list was toward firmness.

The present week so far has been uninteresting. An extension of the Easter holiday through Monday caused dullness to prevail, and there seems to be apparently little change, with a possible downward trend of a small nature in yarn values.

Philadelphia prices on April 10th follow:

Single Skeins.

4s to 8s	30½	10s	31
12s	31½	14s	32
16s	33	20s	34
20s	34	24s	36
26s	37	30s	38

Single Warps.

10s	32	12s	32½
14s	33	16s	33½
20s	34 @34½	26s	37½ @38
30s	38½ @39	40s	47

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 hard white warp twist	30½
8s and 9s tinged tubes	29
8s 3-4 hard twist waste	28

Two-Ply Skeins.

8s	31	10s	31½
12s	32	14s	32½
16s	33	20s	34½ @35
24s	36½	26s	37½
30s	38 @38½	40s	46

Two-Ply Warps.

10s	32½	12s	33
14s	33½	16s	34
20s	35 @35½	24s	37
26s	38	30s	38½ @39
40s	48		

Frame Spun Carded Yarn on Cones.

8s	30	10s	30½
12s	31	14s	31½
16s	32	18s	32½
20s	33	22s	33½
24s	34 @34½	26s	35 @35½
30s	36½ @37	40s	46
30s double carded	38½	30s tying in	35

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	42	20s	44
24s	45	30s	47 @49
40s	51 @53	50s	56 @58
60s	61 @63	70s	71 @74
80s	83 @86		

Single Combed Peeler Yarn on Cones.

18s	40	24s	42
30s	45	36s	49
38s	50	40s	51
50s	57	60s	61
70s	71	80s	83

Mule Spun Carded Yarn on Cones.

10s	34	12s	34½
14s	35	16s	35½
18s	36	20s	36½
24s	38	26s	39
30s	40	40s	48

Mule Spun Combed Peeler Yarn on Cones.

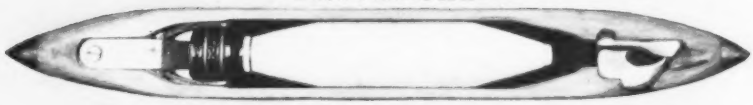
10s	43	12s	44
14s	45	16s	46
18s	47	20s	48
22s	49	26s	50
28s	51	30s	52
36s	55	38s	57
40s	58		

New Electric Hoist Bulletin.

The Chisholm-Moore Manufacturing Co., Cleveland, Ohio, has issued Bulletin No. 31, one of a series of material handling equipment bulletins being prepared and published by that concern. This one covers the subject of electric hoists. Starting with a short treatise on the importance of electric hoists in industry, the new catalog covers in a thorough manner the various types of hoists, illustrates their use, describes their operation and care and gives complete diagrams and tables of clearance, dimensions and other data.

INSPECTED FILLING

"UNIVERSAL"



FULL SHUTTLE INSPECTED FILLING

COTTON SPUN BOBBIN

WORSTED-WOOL SPUN BOBBIN

UNIVERSAL WOUND BOBBIN

UNIVERSAL WOUND BOBBIN

WINDING COTTON-WORSTED-WOOL FILLING

This machine has enabled the progressive mills to effect far-reaching economies, starting in the spinning and carrying through the weaving and cloth rooms. These economies are realized through discarding the old practice of spinning filling on small bobbins that could be placed directly in the shuttles, and by spinning to the maximum ring possible to the count of filling, and then winding from the large spun bobbin to a proper shuttle bobbin on the Universal No. 90 winder. These bobbins are wound firmly and to an exact size to fill the shuttle, presenting at least double the amount of filling per shuttle that was possible with the old spun bobbin. The filling during the winding process is slubbed and cleaned, thereby giving an inspected filling.

To summarize, the use of this machine is directly responsible for increased production in spinning, increased production in weaving, and improved quality in cloth, with decreased costs.

Filling may be wound to the dimensions given on automatic loom bobbins with proper bunches for feelers, on cone base bobbins, and in pin-cop form.

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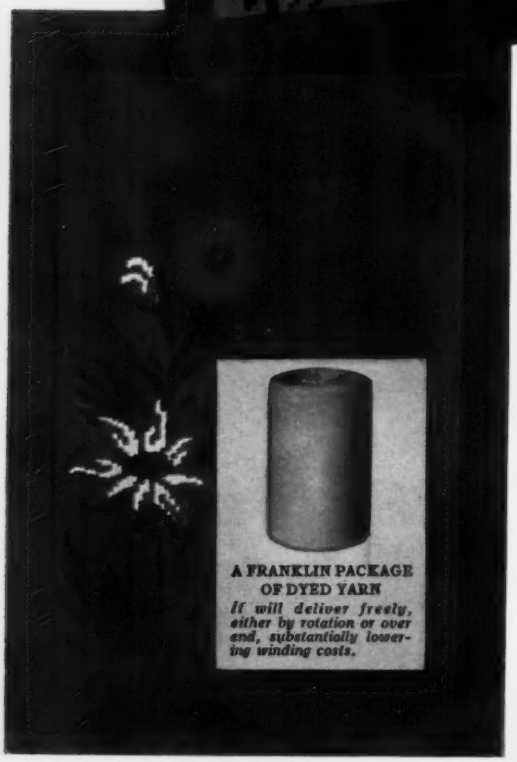
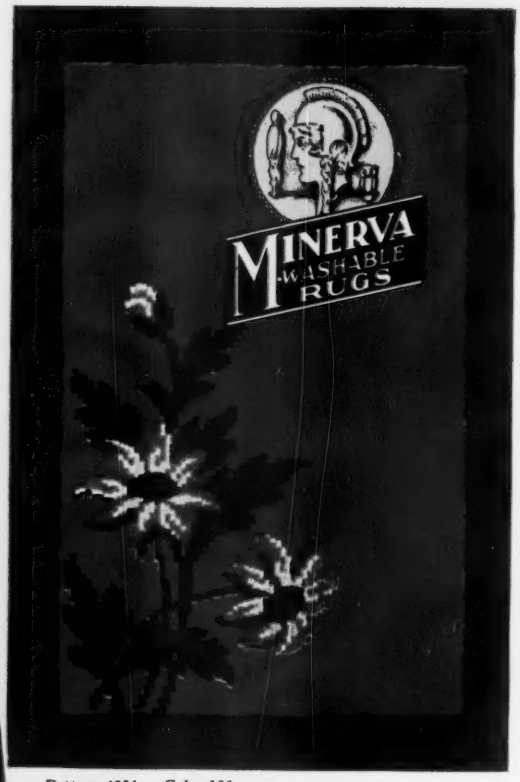
Ad No. 23. Printed in U. S. A.

COLOR *the* MASTER SALESMAN

Pattern 4004 — Color 333

Pattern 4004
Color 902


A FRANKLIN PACKAGE
OF DYED YARN
It will deliver freely, either by rotation or over end, substantially lowering winding costs.



Pattern 4004 — Color 125

WASH RUG manufacturers to-day feature brilliant, harmonizing colors, distinctive designs, and deep, thick pile, with the result that their product is being used in homes where the ordinary wash rug would not be considered.

Among the leaders in meeting the demand for the better rugs of this class are "Minerva" Wash Rugs, manufactured by the Nye & Wait Kilmarnock Corporation, of Auburn, N. Y.

Franklin Process Fast-to-Bleaching Shades (vat colors) are standard in these rugs, for it is imperative that the colors in the pile be thoroughly penetrated.

We have proved to this customer that the use of vat colors combined with the pressure method of forcing the dyestuff through every fibre of the yarn, results in even, durable shades that show no visible change when washed frequently or subjected to constant wear.

We have helped many concerns increase their sales and profits through judicious use of color. Possibly we can do as much for you. At any rate, we will gladly study your problem and give you the facts of what we have done and are doing for others, and let you be the judge. Write us to-day.

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FRANKLIN PROCESS

Commission Dyeing of Yarn in the Wound Form

Ad No. 231-A. Printed in U. S. A.

The Knit Goods Market

A cautious attitude on the part of manufacturers in the three major divisions of the knit goods industry is viewed by some of the more important factors as marking the beginning of a better equilibrium as between production and demand as expressed in the extreme conservatism of wholesalers and retailers. Hosiery continues as the more active branch of the three and promises in this respect to hold its lead, in spite of needed curtailment. More sensitive to climatic conditions and sudden changes, underwear presents a more difficult market situation, with some improvement, however, in relation to heavy weights, from the manufacturer standpoint, while in light weights style may be said to be the cause of a spotty condition in which the knitted has come to be a subject of considerable speculation. Sweaters are going through a period of suspended contracting by wholesalers, following a fair spurt in early buying, with mills in keen competition for whatever business can be forced by concessions in the stiffest worsted yarn markets mills have faced for some time.

Hosiery.

On the basis of current output there appears no excess production of hosiery as a class, but it is apparent that while certain descriptions are not over-abundant, there is a disturbing surplus of others. This is true of women's full-fashioned silk and equally true of fancy half-hose, while in children's lines, barring infants' socks, there is evidence of a better balance. In full-fashioned the finer gauge has the right of way, and notwithstanding efforts to exploit price in the product of somewhat obsolete equipment, strong mills with modern machinery and a clinging clientele seem to have little difficulty in finding a market for capacity output.

Accepting the reports of manufacturers and retailers at their face value, the pre-Easter sales of silk hosiery represented in the aggregate a very large volume. The business exceeded the expectations of most interests, and that most shops and department stores were illy prepared for the rush that must be credited to successive days of ideal shopping weather, was manifest in the rush orders for small quantities. From two to three orders from each of many stores within the pre-Easter week were not uncommon, and there were instances of dealers calling for immediate deliveries on each of four days. It is the consensus that the week's transactions represented the biggest Easter business on the quickest turnover in years.

Obviously there was a general clearance of stocks, light to begin with and practically nothing being taken for future, so that necessarily there should be for a time strong demand on mills for spot goods. With Easter falling on an early date, there necessarily was much deferred consumer buying, which may be expected to contribute to a more lively market for the remaining Spring months, with the usual seasonal lull being a possibility in July and August. For the present, there is a wide-open opportunity for realization of substantial profits for stores, for mill prices as an all-around proposal are under intrinsic value and the consuming public seems not much disturbed over the price level which dealers are able to maintain.

That retailer margin of profit is attractive is indicated in the establishing of many small shops for dealing in hosiery exclusively, mostly women's silk. In Philadelphia, where rentals in the shopping centers may be said to be exorbitant, new small stores are being opened at the rate of about one a week. Such establishments are increasing in number more rapidly than is hosiery production, and must be regarded as tending toward a greater consumption of hosiery. It is noted that very few display anything not made on full-fashioned machines. Output therefore probably is passing into distribution as fast as it is increasing, so that the long dreaded overproduction is hardly nearer an actuality than a few years ago.

Competition is keen especially in 42-gauge hose, but it appears that proper construction and intensive merchandising enable certain mills to easily stem the tide. Using the Noe-Equl mill in Reading, for example, on 42- and 48-gauge, the plant is and for some time has been operating two 10½-hour shifts and is kept sold up. It goes direct to retailers through the Paris Hecker Hosiery Co., who report that their shipments in March exceeded those for any one month in the firm's history. The mill was started about ten years ago as a direct-to-consumer enterprise. It is shipping out more stockings since entering the retailer field than at any time while selling through canvassers, and may be pointed to as one of several establishments to abandon direct-to-consumer merchandising.

While there is admittedly no decline in interest in the pointex heel stocking, controlled by the Gotham Silk Hosiery Co., the Paris Hecker company adheres steadfastly to plain staples, and its success with the 42-gauge square heel evidences there is still a good market for it, despite a growing tendency to 45-gauge and finer, and an indicated wider distribution of the pointex.

Much of the success of manufacturers of popular price chiffons may be ascribed to their high standards of construction, by which beauty and service may be combined in a sheer stocking. This is a combination that has not been entirely satisfactory, dealers stating they have more returns of chiffons than of all other types combined, woman having yet to realize that the average sheer stocking, while beautiful, may not be depended upon to give satisfactory service. But chiffons outrank medium service weight in volume of sales by a large majority, and with even the best, none too serviceable. Some believe the lower price goods often are acceptable on the theory that two pairs will wear longer than one costing around twice as much. A right good chiffon silk from toe to top with lisle reinforcement for the garter is available at many markdown sales for from a dollar to $1.15 a pair, comparing with an even dollar for seven-thread silk to four-inch welt. Such prices sell hosiery and keep 39-gauge equipment well engaged—and there is much of it in operation, although there is some scrapping of the older and shorter frame machines. But there are underway certain developments which may change the aspect of chiffons as a trading proposition.

A Philadelphia manufacturer's ideal sheer stocking for combining beauty and service is a 51-gauge four-thread

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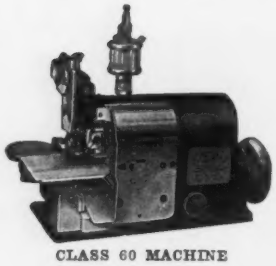

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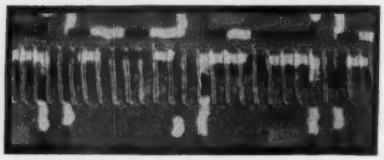

Butted Seam, natural size, made by STYLE 60 ABB MACHINE on Cotton Goods which have been subsequently processed. The STYLE 60 D3B makes a similar though much wider seam designed for use on sleazy or loosely woven goods to insure holding.

OTHER RECENT DEVELOPMENTS—FOR THE RAYON TRADE

STYLE 60 RD —For a three-thread overedge finish, either straight or scalloped, on Rayon Bedspreads and other sleazy articles on which the ordinary edge finish will not hold.

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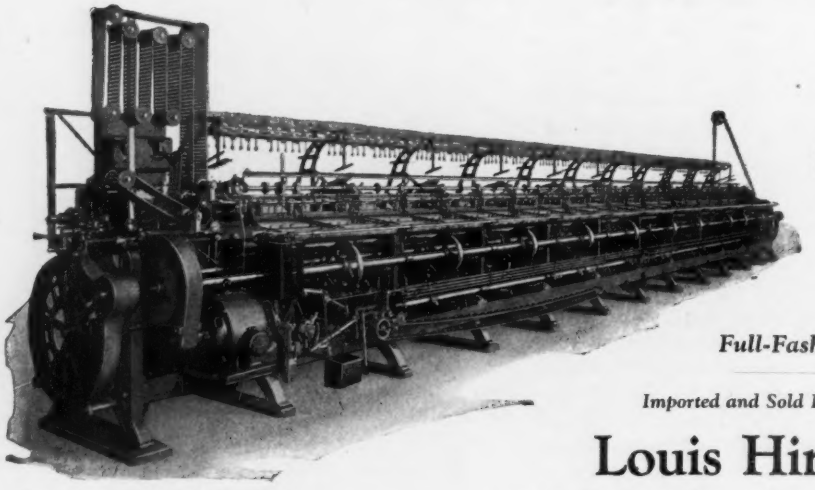

IN ANY DESIRABLE GAUGE AND NUMBER OF SECTIONS

Karl Lieberknecht Full-Fashioned Hosiery Machines also The Einsiedel Full-Fashioned Hosiery Machines

Imported and Sold Exclusively by

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LIEBERKNECHTS HAVE BEEN BUILDING HOSIERY MACHINES FOR OVER FIFTY YEARS

silk, for what is usually referred to as the better trade, and he purposes putting it on the market shortly. Experiments are said to show that it represents maximum elasticity, in which respect it is claimed to differ materially from the average sheer, one trouble with which is that it often cannot even bear the strain of being drawn over the leg. It would compete in price with the 57-gauge and, this manufacturer believes, be equally acceptable to many of the more exacting as to sheerness.

There is little prospect of volume production of such a stocking for some time. A near approach is a 48-gauge three-thread dip-dyed, described as sheer and clear, as yet shown in only a limited way. A Philadelphia mill is experimenting with a two-thread dip-dyed stocking, with what degree of success is not disclosed. Price and construction possibilities considered, 42-gauge hose seems likely to hold its present place in distribution, notwithstanding severely keen competition.

Net hose appears to be winning new friends, and some interests believe it will to some extent displace regulation chiffons for the summer season. Only a few mills are offering full-fashioned net hose, three or four being mentioned as virtually controlling the output. The full-fashioned net sells in exclusive shops for $3.75 a pair, a price which is held as precluding the probability of volume production. A Milinese mesh, with sewed in heel and sole of glove silk, is coming to the front. A recent order was for 3,000 dozens, and it is stated the manufacturer's price was $12.50, which would put it in the $1.50 to $1.75 bracket in average retail stores. Protagonists of the mesh stocking maintain that as it would be immune from runners it might give chiffons a hard rubbing. On the other hand, it is held as lacking in grace and nattiness. Yet it is coming, according to persons speaking for some of the exclusive shops and those in the popular price class as well, and there are heard predictions it will have a run comparable to that of the black heel for a time last year.

The trade for some time has been hoping for something distinctive in women's hose, and it may be that hope is to be visualized in the mesh stocking. But most manufacturers will approach it cautiously, as they did the black heel, the collapse of which, after a brisk season, recalls unpleasant memories for some. Besides, it is pointed out by close observers of style changes and the results in the past, mills are headed toward more conservatism in the matter of output of even staples, as evidenced in numbers operating on short weekly schedules, for forcing distributors to assume a part of the risk for availability of stocks.

Among mill heads favoring a shortened work week there is a trend to installation of the two-machine system, under which fewer knitters would be employed, but the earnings of those in employment suffer no impairment, although they worked fewer hours. Changes in this direction are coming about gradually in northern mills. The sum total of the results is a matter of conjecture. If the plan as worked out by one full-fashioned manufacturer works out as he believes it will, he will reduce his production without any increase in overhead and still pay knitters slightly more than they are receiving now, while operating but one machine. Clearly, it appears, the hosiery industry, threatened with over-expansion, is working out its salvation.

There is no little speculation as to the future for Bemberg hose, which seemingly has leaped into favor as a

Canvas baskets,
trucks,
and hampers
designed for the textile industry

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dollar full-fashioned. For the present it is going through the earlier experience of rayon underwear. According to Burd Brothers, Philadelphia distributors exclusively for the Bemberg number of the Berkshire Knitting Mills, demand has been running ahead of deliveries, and recently the firm announced it could accept no new accounts; that shipments to its regular clientele were in arrears. Brownhill & Kramer, makers of the Bemberg line sold in the John Wanamaker stores, say they are increasing production. Among the mills recently licensed by the American Bemberg Corporation to use the fiber is the William Brown Co., selling only to retailers, under the well known Granite brand, deliveries beginning around the 1st of May. Thus far the sales of Bemberg hose have been confined largely to department stores. It now becomes available to retailers generally and, it is predicted, soon will be found in specialty shops in which it has been taboo.

Whether Bemberg hose has been a factor in unsatisfactory conditions among some well known manufacturers of silk hose selling to the retail trade under nationally advertised brands is a moot question. The fact remains some of these mills have not been as busy as ordinarily. An executive of one important mill in this class states that January and February showed a 10 per cent gain in shipments over the corresponding months of 1927, but that practically all of this increase was lost in March. This was ascribed not to competition with Bemberg but to the fact retailers have been taking advantage of prices offered by manufacturers ordinarily selling to jobbers only, jobber mills in need of an outlet naming attractive prices to a selected retail trade. This seems the more likely explanation, as there is only a restricted output of Bemberg fiber and, obviously, Bemberg hose.

Seamless silk hose is feeling more and more the pinch of competition with low-price full-fashioned, as evidenced in store sales at about the cost to retailers drawing direct from mills. A standard make of seamless, silk to top, was priced 68 cents in a leading department store, the goods being described as "firsts" and perfect. They were of latch needle construction, of 260 needles, a gauge that is in limited demand, while of 300-needle silk there is a scarcity, and manufacturers in the market for cylinders with which to supplant their coarse gauge machines. Only a comparatively few mills are equipped with 300-needle machines, the objection urged against them being some difficulty in getting off profitable production. Those who put them in seem to have had a market all their own way, while numbers of the objectors now are in the dereliet class or having a more severe struggle than the original users of the 300-needle machines ever had since installing them.

A northerner closely affiliated with the knitting trades who recently gathered first hand facts concerning hosiery mill conditions in North Carolina, for his own information, says too many manufacturers have tried for too long to get profits out of coarse gauge and otherwise obsolete equipment, and it is his opinion there is duplication of low price fancy half-hose to an extent that calls for further curtailment than now is practiced. He finds the better conditions exist among mills which have displaced coarse gauge machines, and notes a disposition to try out several of the more recent models for producing patterns.

Excess output of novelty half-hose is not common alone to southern mills, and it appears from the almost endless

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variety of patterns displayed by dealers that there are considerable holdings of designs of the vintage of a year or two ago, for there is no set style. For a time circular stripes held a monopoly, then came the vertical almost exclusively. Now there are both, and bars and blocks, diagonal and otherwise, and some of the one-time passe designs vieing in favor with the modern. The season began with a surplus of fancy socks for popular prices and opens on a scarcity of several mill lines designed to sell for a dollar a pair.

A mill in Reading, one of the larger in Pennsylvania, is credited with making a killing with its dollar numbers. It has sold its production for the season and quite recently turned down an order for 3000 dozens offered by a Central West jobber. The manufacturer, wisely for his mill, permitted no release of the new patterns until April, when it was too late for rivals to copy them and offer them for the current season. It is doubted that samples reached a single competitor. Salesmen for jobbers showed them to a selective trade, by no means all dealers being given a peep. The goods go on the counter as new and exclusive patterns, and the manufacturer has notified jobbers that, as the mill is sold up, it would be useless to offer repeat orders. Judging from this achievement in merchandising, it is assumed the mill has in reserve patterns with which to take care of any duplicate business that is offered—and if the line goes in retail stores with as much snap as among jobbers, there should be considerable unfilled demand for this mill, one of probably a few that is in a position to decline orders. Its success in selling up volume production in advance of the opening of the season is regarded an index pointing to a broadened market for the higher price goods.

Of 25-cent fancy socks there is an apparent oversupply, and there is by no means any shortage of grades for the 35- and 50-cent brackets. The latter remains the more popular price. A quite recent showing was a two-tone cotton sock to sell for 15 cents. It is on sale in the Nevin Hosiery Stocking Store, Inc., in the central shopping district in Philadelphia. It looks like a bit of hosiery that might appeal for sports wear among an element not overscrupulous in its selections, and not likely to run against imitations. Plain colors for silk half-hose represent no material volume of business, but are satisfactory to mills in one respect—prices are stable and competition is causing no concern.

There is a vigorous market for children's hose from mills equipped with the more modern striping and pattern devices, and not a weak one for the general run of seven-eighth length in both plain and fancy colors. In the Easter selling there was a material reduction of stocks and a healthy flow of orders for filling in assortments. Children's hose had been bought well ahead by the more important jobbers, while retailers held commitments down to their more pressing needs. Their early Spring business seems to have been largely in white and plain color full length hose and moderate price semi-fancy seven-eighth. A popular seven-eighth number is of silk and rayon, plain and in patterns, profitable to retailers selling them for a half dollar a pair. It has been one of a leading wholesaler's leading sellers. Southern lines for the 25- and 50-cent brackets are in good movement, along with boys' golf hose, this latter being regarded one of the more active items in the range of juvenile hose.

There is much complaint of late deliveries of this year's

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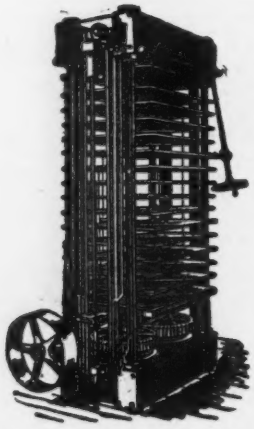

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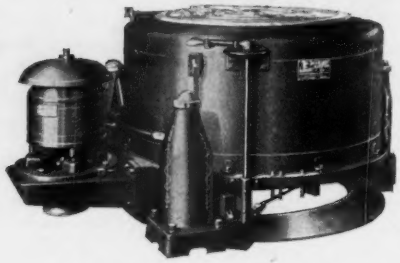

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new patterns of children's hose. It appears that most manufacturers who installed later models of machines overestimated their production and underestimated the market. At any rate, there has been overselling. A southern manufacturer who accepted business in November for deliveries in January had by no means completed shipments in March, and several jobbers received no goods until the second week in April. A Philadelphia mill also is in arrears, but is shipping out parts of orders, thus keeping its trade fairly satisfied. It is explained that some experience with the new machinery was necessary before maximum production became possible. This is true as to some, but the chief difficulty experienced by jobbers is in getting goods from manufacturers who were too conservative with their new installation. Considering the freedom from price competition, this may not have been a serious blunder.

Although distribution of infants' socks has fallen short of manufacturers' expectations, there already is under way preparation for showing samples for the next season, for which, it is understood, there is to be a complete recasting of style and merchandising lines. Some business is coming through, and it appears that an increase in jobbers' orders for the wind-up of the mill season may be safely looked for. Mills are accumulating no stocks, however, so that there is the possibility that with any improvement in demand for June deliveries, buyers will find a shortage of the better grades of socks. According to a person speaking for the Juvenile Hosiery Mill, recently removed from Philadelphia to Greensboro, N. C., the company is booking a fair amount of late delivery business. With most mills in Pennsylvania there is a wide opening for additional business.

Underwear.

Underwear distributors seem likely to run into a position something akin to that of the dealer in umbrellas who refuses to stock up in clear weather and loses sales when he cannot get immediate deliveries on rainy days. Jobbers as a class have not contracted for more than a very small per cent of the heavy weights which would represent their needs in an open Winter. They got into the procrastination habit last year, when the experiences of many were such as to suggest the desirability of buying on a more nearly normal basis this year. Some business which ordinarily would have been placed last December was not written until March and April, and orders that should have been entered weeks ago still are being withheld.

Jobbers are not willing to discount weather conditions. Manufacturers are not quite so "tight" in this respect, but unless there is more forward buying, and that very soon, it would appear there would be warrant for giving machinery a rest.

It is estimated that the more intrepid among leading jobbers have contracted for around 50 per cent of prospective requirements of what they refer to as their "important numbers." Some have bought less, and recent advices from manufacturers are to the effect not much change in the situation need be looked for until distributors run up against a call for deliveries to retailers, along in June-July. At the moment, the retail trade is taking the long chance on getting the goods regardless of when orders are placed. It has got to be and is being drilled into the minds of the recalcitrant dealers that when the patience of manufacturer and jobber is no longer a virtue it will be time to think of the consuming public. That time will be dangerously near in the next month.

Winter underwear can be sold to the retailer now, says the underwear manager for one of the better known large jobbing houses. He proves it by the sales turned in for one day in April by two salesmen, one of whom forwarded two orders totaling more than $3,000 and the other taking around $2,000 business, but distributed among five dealers. Other salesmen, covering equally fertile territory, are doing practically nothing, insisting they "can't sell Winter underwear just now." The manager says it seems they cannot, but he attributes this to their weakness as road men rather than to the attitude of retailers, prices being in favor of the salesmen, if they know how to "play them up."

This underwear man points out that, taking a 12-pound suit for illustrating his point, the price of the suit is but 37½ cents a dozen higher than last year, while the cost of the raw cotton in the suit alone is 75 cents more. "We are covered to beyond our needs as expressed by our trade," said the manager, "and I am quite convinced we own underwear at the year's lowest prices. We carry 45 numbers of heavy weights, but no large stock of any one number other than a few leaders. It is going to be a bad bet for wholesalers who put off their commitments, for they are liable to be confronted with either or both of two contingencies—an advance in prices and no stocks by reason of mills closing down. It is going to be rough sledding for retailers depending upon such wholesalers for their supplies."

It is pointed out that numbers of manufacturers have withdrawn their opening prices, and that in the event they curtail output and orders pile up late in the season, they will be justified in making upward revisions. As to heavy weight cotton ribs there would appear but one explanation for the holdback policy of so many jobbers—a determination to force mills to hold the bag or risk the loss of a part of the year's business by not doing so. Why distributors are dodging, so far as possible, the stocking of light weights is more readily conceivable, for in Summer lines style is playing an increasingly important part.

Men's rayon underwear is unquestionably gaining ground, at the expense of both nainsooks and the knitted. Spring deliveries of ribs and bal briggans have been backward, with wholesalers waiting for something tangible as to how far their trade will go in meeting demand for rayons and the cut and sewn in nainsook and broadcloth. Dealers will be forced, for their own salvation, to carry a more diversified line, which means, obviously, a heavier investment in stock. Only by doing so, it is contended, can they compete with chain stores concentrating on a restricted line but having an advantage in lower prices.

The progressive retailer will need several of around 25 styles of union suits as displayed by one wholesaler. He will require several numbers of running pants and as many of athletic shirts to be worn with the pants. His stock will be incomplete without a few numbers of plain and fancy ribs and rayon union suits and shirts. Necessarily he will stock but lightly of any one selection, and until he has made up his mind the types on which he will make his drive, jobbers are disposed to proceed cautiously with their commitments.

Recalling last year's late and chilly Spring, retailers are

in no hurry to place orders, as was indicated when in recent weeks they bought actively during successive warm days, and practically nothing when temperatures were down. So, weather and style are factors in the ups and downs in business in light weights, while heavy weights must be moving, in theory, at any rate, well in advance of the season when they will be in service.

Sweaters.

Advance business in sweaters is in lighter volume than in the six to eight weeks following the opening. Jobber procrastination is attributed by one of the better known and larger manufacturers to a feeling they are in increasingly keener competition with catalog houses and chain stores, a feeling that is not so pronounced among retailers, for they are doing some buying from jobbers carrying well assorted lines, although giving little support to direct-to-retailer salesmen who are on the road. Yet manufacturers dissatisfied with jobber attitude are, in several instances, planning to sell direct to the retail trade.

A mill here and there has taken more business to date than for the corresponding period of 1927. One, making a drive with its well known advertised brand, reports an increase of approximately 100 per cent. This is a rare exception, although there are some fairly busy manufacturers. The better situated have adhered to established standards and prices, while in the reaching out for business some have deviated in both respects, and the results are said to be not satisfactory. Manufacturers are paying substantially higher prices for yarns than when they priced their lines for the fall and winter season, and while yarns are holding firm, an element in the jobbing trade affects to believe they have reached the peak and that recessions are not improbable. This is doubtless the chief reason for the accumulation of deferred business.

Among the Knitting Mills.

Claussner Hosiery Co., Paducah, Ky., are to erect a $50,000 mill addition, in which additional manufacturing equipment will be installed. Contract has been let and the work is progressing.

Cavalier Hosiery Mills, Narrows, Va., have increased their capitalization from $20,000 to $50,000.

Chilhowee Mills Co., Athens, Tenn., formed recently to operate the Fashion and Chilhowee Mills, have let contract for a building in which the two plants will be consolidated and full-fashioned equipment added.

Through the Spartanburg office of Lockwood, Greene & Co., Inc., engineers and architects, the contract for the general construction of a three-story mill extension and new dyehouse for the Powell Knitting Co., Spartanburg, S. C., has been let to Fiske-Carter Construction Co., Spartanburg, S. C. Additional homes will also be erected in the village.

H. K. Regar & Sons Company of Georgia, Cedartown, Ga., has been formed to operate the former Barnes Knitting Co., Cedartown, Ga. Charles Adamson and Howard I. Regar, of Cedartown, are among the incorporators.

Cadet Knitting Co., Anniston, Ala., which some time ago acquired the Anniston Knitting Mills, plan the erection of an addition to contain 30,000 square feet of floor space.

A two-story, 45 x 70 foot addition will be erected by the Waldensian Hosiery Mills, Valdese, N. C. This will be used for finishing and boarding processes. This is in addition to the recently completed extension which is equipped with full-fashioned knitting machines.

A new steam plant and a five-story mill addition are being erected by the P. H. Hanes Knitting Co., Winston-Salem, N. C. Two 500 hp. boilers, and a steam turbine, generating 1175 KVA, will be installed. Electric power from the plant will drive motors in the mill, and steam from the turbine will be used for process work. Automatic stokers will be installed on the boilers, and coal will be mechanically handled by gravity from overhead bunkers. Mees & Mees, Charlotte, N. C., are the engineers.

The United States Silk Knitting Co., South Langhorne, Pa., recent purchaser of the Brown-Phelps Hosiery Mill in Philadelphia, at a receiver's sale, is planning for early installation of full-fashioned equipment and getting started on production. The principal in the purchasing company is Harry West, who for a short time operated a full-fashioned mill in Petersburg, Va. The Glen Knitting Mills, another of the Brown group of one time active full-fashioned establishments, is being operated by the receiver, E. Boyd Weitzel, who also was the receiver for the Brown-Phelps.

An unconfirmed report links a well known hosiery factor with a movement to establish a full fashioned hosiery mill in Riverside, N. J., where a civic organization is eager to locate a plant to take up in part the slack in employment due to the discontinuance of the business of William F. Taubel, Inc.

The Artus Knitting Mills, Bristol, Va., manufacturing rayon underwear and selling to the retail trade, reports sales at a good stage and making necessary a new factory building. The managing executive is LeRoy Querns, formerly of Philadelphia, who selected Bristol as a location for his underwear factory, established a little over a year ago.

A full-fashioned hosiery mill is fast approaching completion at Phoenixville, Pa., to be operated by a Philadelphia manufacturer who declines use of his name until he is ready for removal from the present plant.

STATEMENT

of the ownership, management, circulation, etc., required by the act of Congress of August 24, 1912, of COTTON, published monthly at Dalton, Ga., for April 1st, 1928.

State of Georgia, County of Fulton.

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared W. J. Rooke, who, having been duly sworn according to law, deposes and says that he is the Business Manager of COTTON, and that the following is to the best of his knowledge and belief, a true statement for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, W. R. C. Smith Publishing Co., Atlanta, Ga.; Editor, L. L. Arnold, Atlanta, Ga.; Business Manager, W. J. Rooke, Atlanta, Ga.

2. That the owners are: W. R. C. Smith, Atlanta, Ga.; W. S. Cushion, Cleveland, Ohio; O. A. Sharpless, Atlanta, Ga.; J. C. Martin, Atlanta, Ga., H. H. Kelley, Atlanta, Ga.; W. J. Rooke, Atlanta, Ga.; T. W. McAllister, Atlanta, Ga.; P. D. Hammett, Chicago, Ill.; L. F. Gordon, Atlanta, Ga.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or any other security holders are. None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appear upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs containing statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stock holders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bonafide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. W. J. ROOKE, Bus. Mgr.

Sworn to and subscribed before me this 28th day of March, 1928.

E. L. PHILPOT, Notary Public.

My commission expires March 5, 1931.